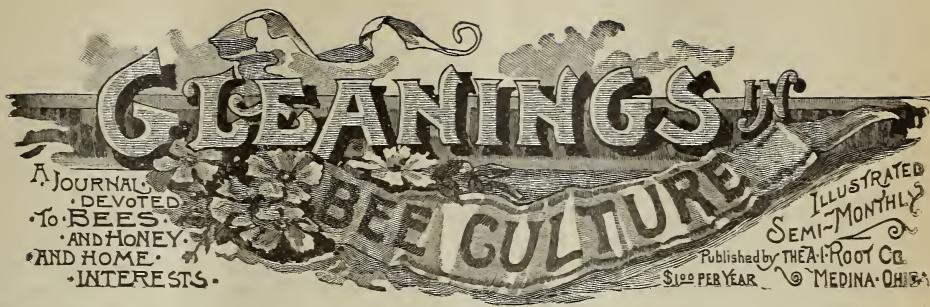


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**GLEANINGS** OF  
BEE CULTURE

A JOURNAL  
DEVOTED  
TO BEES  
AND HONEY.  
AND HOME  
INTERESTS.

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No. 22.



**STRAY STRAWS**  
FROM DR. C.C. MILLER.

NOVEMBER opens up with the loveliest kind of weather—bees flying as in summer.

HAS C. A. HATCH, too, deserted the North, and is California to get all our best men? I hadn't heard he had left Wisconsin; but on p. 777 he hails from Pasadena.

THE SECTION-HOLDER has been improved by a writer in *Australian Bee Bulletin* by putting on a top-bar. That's unkind, Mr. Editor, after you had improved the wide frame by taking off the top-bar.

"ABOUT THIS TIME," as the almanac used to say, bee-keepers will begin to paint in brilliant hues the prospects for next season's crop. I'll add my mite by saying clover was never thicker on the ground than now.

PH. J. BALDENSPERGER says, in *British Bee Journal*, that, while the odor and flavor of some honeys are strongest when fresh, those of horehound and orange, weak at first, become strongly pronounced afterward.

O. B. BARROWS writes, "It does seem strange if bees can bit through a grapeskin, that my bees should stand right among my grapevines and never a bee touch a grape. A few grapes still hang on the vines, Oct. 10, but not a bee on them."

THE HORTICULTURAL SOCIETY of Northern Illinois, through its secretary, has asked me to write for them a paper on "Bees in Horticulture." Doesn't look like an irrepressible conflict in Northern Illinois between fruit-men and bee-men.

I DON'T THINK the wild sunflower of Ohio and that of Nebraska are the same. Isn't the Ohio plant perennial, and the Nebraska, like the Colorado, annual? [No, I think the plant in Ohio is an annual—at least the frost has killed them clear down; and then, besides, they look exactly like the plants in Nebraska, except that they are smaller.—ED.]

SAY, DOOLITTLE, that's hardly fair for you to weight down sub-ventilation with turning a regulator "from one to ten times a day," p. 787. I never did any regulating one time in ten, nor in thirty days. But I feel just a little shaky about sub-ventilation on account of the *quality* of the air that comes in.

JAMES BENNETT, in a sensible article in *Australian Bee Bulletin*, says, "When a person has acquired a taste for one variety of honey he prefers that variety to any other." Australians think eucalyptus the finest honey in the world; but England will none of it, notwithstanding the earnest efforts made to establish a market for it. A point in favor of home markets is the preference for home honey.

THE AVERAGE WEIGHT of 9264 sections, mostly  $1\frac{1}{2}$ , with a few  $1\frac{1}{2}$ , was 15.088 ounces each. They varied from less than 13 to more than 17 ounces. This was with separators. [I believe this is the first instance where ten thousand or nearly ten thousand sections of honey were weighed to get the average weight per section. I think we can safely set it down that a  $1\frac{1}{2}$  section approximates almost exactly 15 ounces.—ED.]

PERFORATED ZINC  $\frac{165}{1000}$  or larger will hold the smallest queen from going up into a super; but I don't dare to trust it to keep in the largest queen if she's crazy to swarm. [If the queen is crazy to swarm, and the bees are with her in that desire, there is not very much use in putting zinc or supers on the hive. But your strain of bees seem to differ in size from those owned by the majority of bee-keepers. Crazy or not crazy, it is generally reported that the 165 mark holds the queens.—ED.]

"WHAT SIZE and style of shipping-cases do you prefer for marketing comb honey?" is a question in *American Bee Journal*. Single-tier 24-lb. cases have most votes, 12-lbs. coming in second. After all, it isn't what you and I prefer, but what sells best in our particular market. [Yes, I know you are an advocate of a double-tier 24-lb. single shipping-case; and it is possible that, with your particular market, many would prefer them; but the Chicago

market (not your own market as I understand) so far as I can ascertain perfers the single-tier cases. The same is true of nearly all the other markets.—ED.]

I AGREE with your figures, p. 777, Mr. Editor, till you say, "If the bees reared a cell from an egg, the young queen would hatch in about 16 days." Unqueen a colony and the bees will start a queen from a larva, never from an egg. I think I never knew even a nucleus to be 16 days raising a queen, and a full colony will have a queen hatch in 9 to 11 days. That means that a larva 1 to 3 days old was chosen. [It is never wise to be positive; but I feel quite certain that I have seen queen-cells right over eggs. As nearly as I can remember, such colonies, having been queenless for a long time, were given a frame of eggs. In their eager haste they built cells over the eggs. Remember, I was talking from the time the egg was laid to the time the queen would emerge.—ED.]

THE *British Bee Journal* will "in future decline to pass an opinion on samples of honey received here unless the place from whence the honey has been gathered is stated and vouched for." That means British honey is better than foreign when they both taste alike. But somehow I admire the patriotism of the *British Bee Journal*. [The "foreign" honey referred to by our British cotemporary, as nearly as I can gather by reading the articles, is not the better quality of American honey that finds a good market in this country without being sent abroad; but it is the poorer grades sent from America and from British provinces on this side of the globe, and which are palmed off in England as British honey. This our British cousins do not like, and I do not blame them. If they had a little American "protection" over there they could stop that sort of disreputable competition.—ED.]

WIRED FRAMES will hold foundation without any fastening around the edges; but to make sure that the foundation is in the middle at every point I always fasten it on all sides. I can afford to be fussy with a thing that I want to be just right, and that lasts for a lifetime. [Is it true, doctor, that your combs will last for a lifetime? Was there not some talk two or three years ago, and from some pretty reliable sources too, that combs older than 10 or 15 years had better be melted up because the cells, from the accumulation of cocoons, would be too small to breed normal-sized bees? and moreover, doctor, you are quite liable, once in 15 years, to change to a different frame. And, again, if you were producing extracted honey, as some of your friends do, the real dark old combs would not be as good as the newer combs.—ED.]

HEART'S-EASE and smartweed, as they grow in Northern Illinois, are so much alike in appearance that a careless observer takes one for

the other. But the most careless taster could never make any mistake if he bites the leaves. Smartweed smarts like fire; but there isn't the least smart to heart's-ease. [I probably was in error in stating that smartweed and heart's-ease belong to the violet family. Smartweed, at least, belongs to the *Polygonaceæ*, or buckwheat family. By consulting authorities I find there are two kinds of heart's-ease—one that belongs to the violet family, just as I stated, and another to the buckwheat family. It is the one that belongs to the last-named family that concerns bee keepers. But I am not certain in my own mind whether we have real heart's-ease of smaller growth or whether it may be smartweed; and as the season is over, it is not possible for me to make proper identification with the botanies. Perhaps Prof. Cook, or Prof. Bessie, of the Lincoln State University, can enlighten us.—ED.]

HOW LONG from the laying of the egg to the hatching of the queen? "Queens emerge between the 17th and 18th day after the eggs are laid," was the law laid down by Berlepsch, *American Bee Journal*, Vol. I., p. 199, though Dzierzon thought that, under favorable circumstances, 17 days was enough. That was 33 years ago. Later 16 days was taught; but years ago some of us declared that was too much. The books, at least some of them, now give 15, but many still cling to the old 16. [I think data were originally taken from nuclei; but results are quite different in full colonies; 15, not 16, remember, is the number. Considering the fact that some authorities, as you say, state that queens emerge between the 17th and 18th day, and you and some of the rest think 15 is nearer right, 16 is a very good average. In A. I. R.'s early experiments he found that the queens average about 16 days from the egg, and so reported in the A B C book. It is possible that 15 might be a nearer average.—ED.]

"MOST PEOPLE like an oblong comb of honey to set before guests better than one which is square," says Doolittle, in *American Bee Journal*. [It's important to know whether that's correct. Are not the plates on which honey are placed usually square or round? Would an oblong comb look best on them? Who can tell us what is liked best? I certainly think an oblong comb, when it stands up, looks very pretty, and, in comparison with a square comb of the same surface, looks larger. I believe it is Capt. Hetherington who says our tastes have been educated to prefer tall buildings, and panes of glass the longest way perpendicular rather than horizontal. Mr. Danzenbaker, I believe, has made the point that sash with square panes of glass do not look nearly as well as sash having glass longer the perpendicular way than the horizontal. After all, I suppose it is a matter of taste and what we get used to. It strikes me, however, that a square comb

would look better on a round plate than an oblong.—ED.]

"**THERE IS NOT A TITHE** of adulteration of honey that there was 8 or 10 and more years ago . . . Through the efforts of the different bee-keepers' associations in New York, the New England State Bee-keepers' Union, and the International Bee-keepers' Association, the evil has been put down—so much so that at this time adulteration is but seldom practiced." So says Geo. Spilter, in the *Ohio Farmer*. I wish Mr. Spilter would specify a few of the things the Union, International, and other associations have done. [I can not but wonder where Mr. Spilter has been keeping himself. He does not appear to be familiar with the recent issues of the *American Bee Journal* nor with this journal, or else he would not make a statement so wide of the real facts. If he were to go with some bee keepers whom I could name, into the Chicago market, he would have his eyes opened. Yes, indeed, I wish Mr. Spilter would specify a few of the things that the Union, International, and other associations have done in the way of fighting adulteration. The drawing up of resolutions really amounts to nothing. What is needed is some detective work followed up by good legal talent and good laws to bring the adulterators to justice—ED.]



We can go one better than J. F. Bolden, of Tulare, Cal. He had one horse killed by bee-stings. □ A bee-keeper in this county had two horses stung to death.

About the same time a bee-keeper was run over by the cars at Santa Monica, in this country. He was killed. Verdict was rendered that he had on too big a jag of tanglefoot—charitably supposed to have been taken as an antidote for bee-stings.

□ Joseph Moffatt of this city (Los Angeles), who has made quite a fortune in bee-keeping, soon goes to Central America. He will take with him a few colonies of bees. Some portions of Central America are noted for honey production, and quite equal to Cuba.

Mexico is also attracting much attention as a honey producing country. New migrations and developments must be looked for in the near future.

Some of our veteran bee-keepers who have been long residents of California argue that it does not pay to feed bees here during a dry season. They say let the bees die that can not take care of themselves. Those that are vigorous enough to live through will make up all deficiencies when the good season does come.

There are many, however, who differ with the veterans, and feeding is largely in practice at present in California; and we predict that those who feed will get a crop of honey another year, while those who do not feed will barely get their empty hives filled.

Is it not about time for that item charging Madam Mojeska with having 600 colonies of bees to be stopped from swinging around among the newspapers? The following from Dr. Gallup, of Sinta Anna, settles the matter right: "I have known the madame's apriarian for a number of years. I saw the young man to-day, Oct. 7. He says she has 125 colonies, mostly pure Italians, in bid condition. The bees have been fed quite an amount, and they are soon to be moved to the valley to winter. So you now have the facts from headquarters," says the doctor.

Note what Dr. Butler says about second-hand oil cans on page 752. It is evident that he is a thorough cleanser of cans; but the bee-keepers of California are not all Dr. Butlers, and in a majority of cases where oil cans are used there is more or less carelessness in cleaning, and several cases of honey come under condemnation. Perhaps a well-cleaned oil-can will answer for a low grade of honey; but for the best grades of honey the trade begins to call quite loudly for the use of new cans.

Furthermore, second-hand gasoline and oil cans are not so plentiful as formerly. Oil is being shipped in bulk, and peddled out to the consumer; and while Dr. B. can buy cans for 8 cts., good second hand cans and a case cost almost as much as new cans and cases in this southern country. On the whole, new cans and cases should be the motto of every progressive bee-keeper.

#### BEE-ESCAPES.

**A MULTIPLE-EXIT BEE-ESCAPE TWICE AS RAPID AS THE SINGLE EXIT: DIBBERN'S LATEST WITHOUT DOORS OR SPRINGS.**

*By C. H. Dibbern.*

I was greatly interested in the article on page 535, by Mr. Reddish, on his bee-escape; and although it is not very clear, I think I have the idea. As you request in a footnote a reply from those having had experience with escapes, I have concluded to have my say once more, although I have written so much on the subject in the past that perhaps now silence would be golden.

I believe I was the originator of the modern bee-escape, and think Mr. John S. Reese, of Kentucky, will recognize the drawing sent you herewith as similar to the first drawing sent him, only that then I used wire cloth instead of wooden boards. This was in 1889, and I have been experimenting on this line ever since, having tried more than one hundred different

designs. During all this time I have closely studied the action of the bees, when escapes were in use, with a view to making escapes that would work more rapidly and more certainly; and I now feel certain that I have such an escape. I long since discovered that Mr. Porter's claim, that one of their little single-entrance escapes, being as rapid as if two or more were used, is a mistake. I have used four of the Porter escapes, as well as from four to six of some of my own patterns, and found quite a difference in the length of time required to empty a super. Then it always struck me as being just a little cruel to take a super full of honey, and crowded with bees, and cut off all chance for air except what little can come through a single Porter escape. I have several times done this in hot weather, when the bees would soon appear running from the hive-entrances, black as ants.

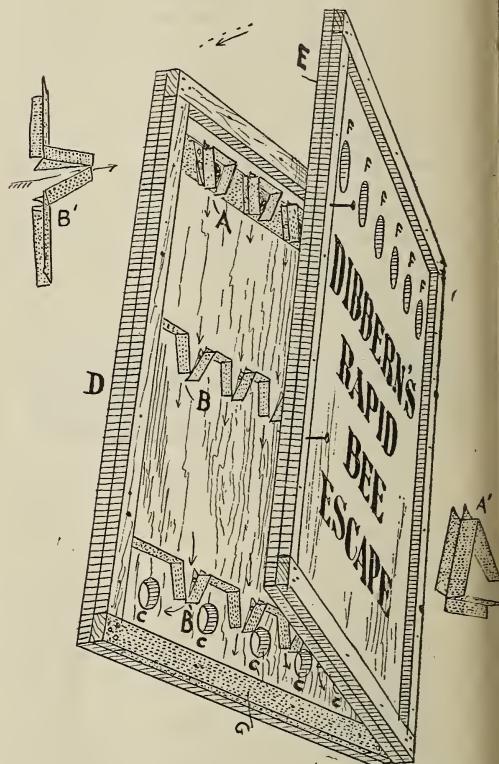
In experimenting with escapes one would think that it would be easy to determine which is most rapid; but that is not the case. There is so much difference in the condition of bees, or their disposition to leave, the time of day, or the weather, that one must not jump at conclusions. I think Mr. Reddish will be disappointed if he expects his escape to work 24 times as rapidly as the single-entrance escape. Indeed, I have found the number of entrances or exits to escapes to secure the most rapid emptying of supers to be quite limited. When too many openings are made, bees seem to lose their desire to leave at all; and that was the trouble when I tried wire cloth for divisions and escapes.

One way to hasten the disposition of bees to leave the super is to raise the top boards over supers slightly, and blow smoke under it, and wait, say, half a minute, then slip the escape-board under. The first puff of smoke will send many bees down into the hive; but if you wait too long many more will return, and they will, perhaps, be slower to leave again. If a little smoke is thus used I have cleared the bees from a dozen or more cases, at my out-apiary, in less than three hours, and been off for home by using the escape I will now describe.

I simply use two covers for supers, which are made of  $\frac{3}{8}$ -in. boards with a  $\frac{3}{8}$  bee-space on the upper side. In the upper board I simply bore six  $\frac{3}{4}$ -in. holes an inch or two from one end. In the lower board I bored six similar holes in the opposite end for exits. Now in the  $\frac{3}{8}$ -in. bee-space that will be between boards I make three series of obstructions with openings all pointing to the exit-holes, such as we have long been used to for window bee-escapes. I use perforated tin to make this fence-like partition. I find that the distance has a good deal to do with bees finding their way back. It should not be less than 10 or 12 inches from the entrance-holes to the exits. The boards can be

kept permanently for bee-escapes, or they can be used for super-covers by simply laying a piece of tin over the holes. I do not claim that this escape will work six times as rapidly as the Porter, but I believe it will work twice as fast; besides it affords all the ventilation the strongest colony of bees will ever require.

As most of us tip our hives forward I think something is gained by placing the escape so the entrance-holes will be on the lower side, over hive-entrance. Then the bees have to run up hill in passing the escapes, which seems to be the more natural way for them in their leaving the super. It will work just as well where whole hives are used for extracting, providing queen-excluders are used.



I want to say, in regard to the Jardine escape, that his gates will surely become stuck up with propolis in a short time in actual use. I have a pattern almost like it that I used some three or four years ago, but have long since discarded; and my trap-doors, being made of fine tinned wire, were not nearly so apt to become gummed as the Jardine, which I suppose is tin.

I want to say that, in my escape, now described, I use no traps or springs of any kind. The passages are just plain openings, about  $\frac{3}{8}$  in. wide, so that a drone can easily pass through it. If you will watch a bee in passing the Por-

ter springs, or traps of any kind, she will usually make two or three attempts before passing through. Even in my escape, where there is ample room, they often hesitate in passing through. There is yet plenty of time to try my plan this season, and I shall be pleased to hear reports. There is no patent on it, and it infringes no one's rights.

Milan, Ill.

[See answer to the next article for footnote to this.—Ed.]

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#### MULTIPLE-EXIT BEE-ESCAPE NO ADVANTAGE OVER THE SINGLE.

#### AN INTERESTING SERIES OF COMPARATIVE EXPERIMENTS.

By R. & E. C. Porter.

*Editor Gleanings:*—In response to your request in your issue of July 15, for our views as to whether increasing the number of escapes used to the board, or increasing the number of exits of the escape shortens the time occupied by the bees in leaving the super, permit us to say, as we have said before, that, previous to bringing out the Porter escape, we made extensive and very careful comparative tests to determine this; and while it seemed reasonable to suppose that thus enlarging the means of egress should correspondingly facilitate the departure of the bees, yet our experiments show that neither the one nor the other has the slightest effect in this regard; and, further, that neither the use of more than one escape to the board nor the use of more than one exit to the escape is of any advantage in any way, providing the one exit used is of such construction that it does not become clogged with dead bees.

While our use of escapes in the regular work of the apiary every year since has been of such a character as to expose the error of this conclusion, if it existed, yet our experiences therein have confirmed rather than disapproved it; nor has any thing been brought out by any one else to lead us to think that we were in the wrong.

The two experiments of Mr. Reddish, detailed in GLEANINGS of July 15, throw no light on the question, as they were not comparative; and, further, that it is not at all unusual for all the bees, under favorable conditions, to pass from the super through a single-exit escape in from  $1\frac{1}{2}$  to 2 hours. Tests of different forms or sizes of escapes, to be of any value as showing their relative merits, must be comparative, and made with the same colony at the same time of day, and under approximately the same conditions as to weather, honey-flow, size of super, and contents thereof.

In the summer of 1893 this matter was brought up in the *Review* by Mr. R. C. Aiken, of Colorado, who was of the opinion that the single-

exit Porter escape was not of sufficient capacity, and we, at this time, made further experiments in the same line as before, and with the same result, using our single-exit escape to the board in comparison with as many as a dozen single-exit escapes to the board, and also with escapes having as many as fifteen exits. To enable Mr. Aiken to test the matter for himself, we sent him a fifteen-exit escape with several of less capacity. After having tested it, in a limited way, in comparison with our single-exit escape, he writes us that he could not see that the large one expedited the matter in the least. After further trial, in a conversation with the writer at the Chicago convention, he confirmed this opinion. We also, the same summer, mailed several fifteen-exit escapes to others, including one to Hon. R. L. Taylor, but do not know that any of these were ever used. When mailing escapes to customers that season, we sent a number of them, in addition to the escapes, an escape having exits at both ends, but otherwise practically the same as the regular form, and asked to have it tested comparatively. But one of these, however, Mr. H. J. Lingenerfeler, of Glen, N. Y., favored us with a report. He wrote as follows: "The double-exit escape works very well, but I prefer the single, as it clears the sections from bees sooner than the double. I can account for it in but one way; and that is, when the bees start from the super they set up a call from each end of the escape, which seems to confuse them, and they run back and forth instead of passing out as they do from the single exit."

In the past ten days, to verify the results of our former experiments and experiences, and to eliminate possibility of error in this matter still further, we have made and thoroughly tested, in comparison with the regular Porter escape used singly, the sixty-exit escape, which we have forwarded to you for further trial, should you care to make it. The tests in this instance were made as follows:

Two strong colonies in ten-frame L. hives, having  $6\frac{1}{2}$ -inch extracting-supers above, about half filled with honey, were selected, and at 8 A. M. the multiple-exit escape was placed under the super of one and a single-exit escape under the super of the other. At intervals of an hour the supers were examined and the results noted. When the bees had all passed out, the escapes were removed, and the bees allowed to resume their normal condition in the supers.

At 8 o'clock the next morning the escapes were again placed under these supers, but in reverse order, and the results noted as before. The experiment was further continued in the same way with two other hives of the same size, but having two  $6\frac{1}{2}$ -inch supers on each, the escapes in each instance being placed below both of the supers; but in no one of the four tests could we detect that the bees passed out

through the large escape any sooner than they did through the small one. The only difference we have ever been able to detect between the workings of escapes of different capacities is that, with some colonies, large escapes seem to produce less excitement of the bees in the super, or less anxiety to get out of it, than small ones do, though with many colonies there is no perceptible difference in this respect. Here, it may occur to some one, that the one thing necessary to secure greater rapidity in the working of the escape is to use a large one with a double set of springs or two large ones, one above the other, so that communication between the bees in the super and those below may be entirely cut off; but we have found that such an arrangement is of no advantage.

To use a large escape, and smoke the bees down through it into the brood chamber, is impracticable, as bees thus blinded and bewildered with smoke are very slow to find the exits of any escape however large or numerous. The smoking-out can be accomplished much sooner without the escape than with it. In either event we regard such excessive smoking as very objectionable with either comb or extracted honey.

Your statement as to its usually taking anywhere from 10 to 24 hours to get the bees out of the super by the ordinary Porter escape with one exit, accord nearly with our experience, if you refer to supers of full depth L. extracting-combs; but if you mean supers of completed sections, it is decidedly at variance with it. The latter we find are, as a rule, freed from bees with this escape in from 3 to 5 hours, and this is the experience of others so far as we have heard it. One case in point:

Dr. Geo. Locke, of Newburg, Ind., a few days after we filled his order for a single escape, wrote us as follows:

*Gentlemen:*—Here comes the report of the work of the Porter spring bee-escape. I put the escape under a super of sections late last night, and this morning there was not a single bee in it. At 8 A. M. I put it under another super, and at 11 o'clock the bees had all passed out. In the afternoon, at 2 o'clock, I put it under another super and removed it at supper-time without a bee. The escape is worth \$5.00 to me. It will satisfy the worst growler. Enclosed find money order for \$1.00, for which please send five more.

Lewistown, Ill., Sept. 29.

[The Porters have all along insisted that there was no advantage in a multiple-exit bee-escape over one having a single exit. I asked them last summer whether it were not possible there was some mistake. To test the matter further they made, as mentioned, a *sixty*-exit escape; and after testing it they sent it to us, as they state. We repeated the experiments in our own apiary, and the results were the same as the Porters had.

But why is it that Mr. Dibbern's experience seems to be different? I can not say; but I should be inclined to think he may have been deceived. I notice that Mr. Dibbern is not pos-

itive, but says he *believes* (italics mine) that his escape will work twice as fast as the Porter. I do not find that he anywhere made comparative tests—that is, trying an escape on his plan with a single exit and one having the number shown in the engraving. The plan tried by the Porters—namely, of putting one of the two kinds of escapes on each of two colonies as near alike as possible, and then alternating the escapes, is the correct way. If Mr. Dibbern had tried this plan I think he would find little or no difference in the relative working.

One thing should be noted: and that is, Mr. D.'s escape is different in principle, and possibly on his plan there would be a real difference in the relative rapidity of the single and multiple-exit escape. But on the Porter plan (flexible springs) I feel quite sure that the single exit is just as rapid and certainly cheaper.

I wish to corroborate Mr. Dibbern's statement—namely, that the hinged-door plan of Mr. Jardine's escape is not a success, in that the hinges become propolized and so fail to work. Our bees did this very thing.—ED.]

#### MAMMOTH BEE-MOVING WAGONS.

METHODS OF MANAGEMENT OF ONE OF THOSE GREAT CALIFORNIA BEE-KEEPERS.

By M. H. Mendleson.

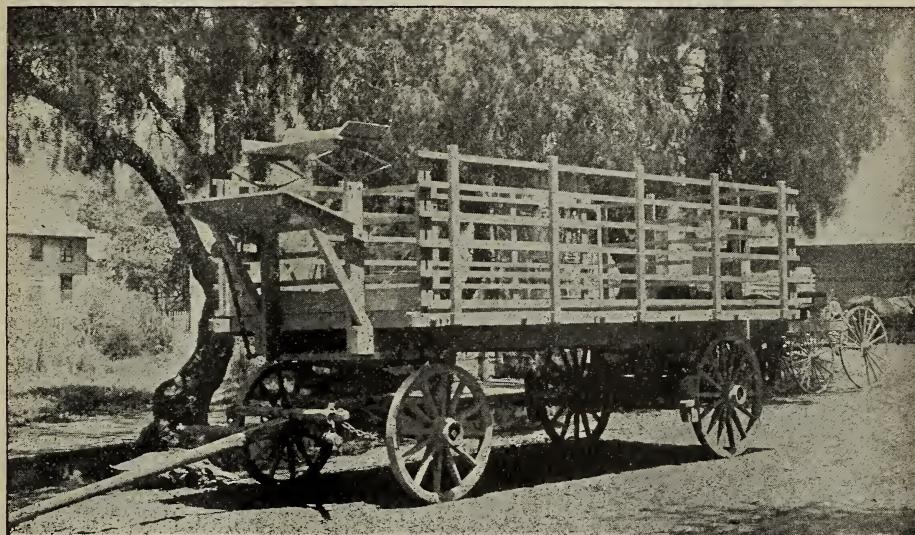
*Friends Root:*—I send you the photos of two of my moving-racks. □ Heretofore I have been at a disadvantage in moving bees with rigs of insufficient capacity to make time and profit. As you will see by the size of them (dimensions given under cuts) I can move a good-sized apiary with entire success, no matter how strong the colonies are. Two men can clamp the frames of 250 or more colonies, put screen frames over the tops of same, in one afternoon, ready to load when it's time to put on screened blocks, by dusk or before.

I have a set of steps that slide in between the bed-pieces of rack. I pull out my steps, and load up by setting hives in, five in a row, across the rack, entrances facing front. Ten of these rows cover the first tier of large rack, piling two to three tiers high of single stories, and from one to two tiers high of double stories. The small rack carries from ten to twelve less to the tier. □ I have no binding-rod; slide in my end-gate, and drive on. □ I always have a smoker lighted in case of an emergency; but if the colonies are properly closed I seldom have use for it.

I have a five-ton set of Spaulding springs under the large rack, and three springs under the small one. The rigs being so large and heavy, when any one wheel strikes a chuck-hole there is an even, gentle rock to the whole rack, making it almost impossible to chafe off any lids or screens. These screens are made  $\frac{1}{8}$  in. less in size (all around), than top of hive; side pieces of screen frames are made of spruce, one inch square. The end-pieces are of the same; are  $1\frac{1}{2}$  in. high, and rabbeted down  $\frac{1}{4}$  in. to meet side pieces. A  $\frac{1}{2}$ -inch rabbet is

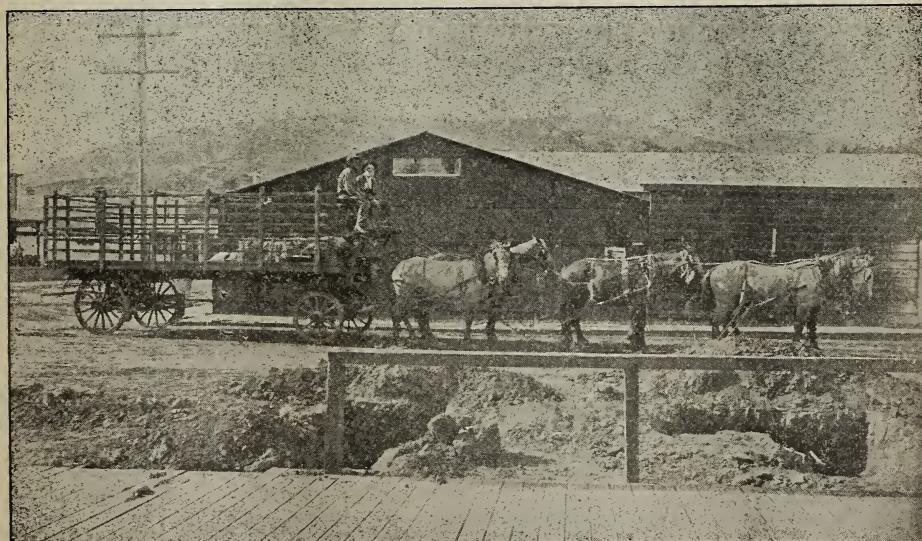
taken from the ends so as to nail from both ways, to strengthen the frame. When the screen is tacked on there is a  $1\frac{1}{4}$ -inch space for bees to cluster above the tops of the frames of the hive; and the ends being  $\frac{1}{2}$  in. higher when lids are put on, there is a  $\frac{1}{2}$ -in. space between

the screen and the under side of the lid, giving the necessary ventilation or draft of air over the bees. When on the wagon the draft of air is across. If the screens were made within  $\frac{1}{4}$  in. of the tops of the frames, the bees would then have a bearing to crowd in, and smother



MOVING-RACK FOR HAULING A WHOLE APIARY.

Floor-space, 7 x 16; side slats,  $3\frac{1}{4}$  ft. high; Spaulding springs, 3 tons capacity; carries 3 tiers of single-story 10 frame Langstroth hives, 16 x 23 bottoms. Bed piece, 3 x 8; cross-pieces 3 x 4, strong and firm enough to hold up 6 or 8 tons; side-pieces for stake-irons, 3 x 4 x 16; seat-standards, 2 x 6; stakes, 2 x 3; slats, 1 x  $1\frac{1}{4}$  riveted to stakes. The flooring is thoroughly bolted, N. J. matched flooring; all made from No. 1 selected Oregon pine, or fir, and thoroughly bolted. Made at my apiary, spring of 1886, improved plans.



MOVING RACK FOR HAULING A WHOLE APIARY.

Floor space, 7 x  $10\frac{1}{4}$  ft.; slats 4 ft. high; carries each tier 50 colonies, or 100 double-story colonies. I have had 150 single-story colonies on it at one time. Capacity of spring, 5 tons. A test in the weight of this rack at 1000 lbs. The rack will fit any  $4\frac{1}{2}$  in. bolster of lumber wagon. A set of broad steps slide in under for loading. Bed-piece, 3 x 8 x 20; cross-pieces, 3 x 4; side-pieces for stake-irons, 3 x 4 x 20; stakes, 2 x 3 x  $4\frac{1}{4}$ ; slats, 1 x 2, all riveted seat stain larks, 2 x 6, thoroughly bolted, and very firm made at my apiary, spring of 1885. Mr. J. B. Cherry, an old bee man, is seen at left of driver.

to death. Four six-penny nails fasten these frames to hives, driven down with the heads left so as to draw out easily with a hammer.

I am trying to devise some plan to clamp these screen-frames on so as to save time and confusion, and marring of frames. Vandeuken clamps do not do, although I shall try them again.

It will never do to crowd a real strong colony from a two-story to a one-story hive, for moving; but with the medium strong I can do so. If hot weather, I should not crowd them.

Now take a careful driver, and you can move with success. I am almost always with these big teams to see that all goes well.

When moving so many bees at one time, if set in one apiary, to avoid a great confusion of bees they should be released in the evening, and the next morning they are quiet and not as cross. In hot weather I prefer the night for moving.

I am using the Porter escape with success. Bee-men are certainly behind the times if they can afford to and then do not use them. A thorough trial is all that is necessary to convince any one. Of course, with heavy honey for extracting it does not come out as clean; but I prefer them to brushing bees, and then you can avoid killing so many bees; and when the honey season is closing, and bees beginning to hang around the extracting-house, and follow you around, inclined to rob, then is when one of the great advantages of the Porter escape comes in. With me, near the coast, it is much cooler, and takes much longer for them to leave the super; but in the heat of the season, if put on in the evening, the super is clear by morning, with but few exceptions.

I'll try, at my first opportunity, to give my mode of preparing bees for the honey harvest, extracting, canning, etc.

Ventura, Cal., Oct. 3.

Knowing that our friend Mr. Mendleson was one of the most extensive bee-keepers in the world, and one who does things on a mammoth scale, I have been trying to get him to write, giving some of his methods of management; and it is with no little pleasure that I am now permitted to present the first article of the series. That his business is conducted on a mammoth scale is evidenced by the two bee-moving wagons shown herewith. Why, think of moving a whole apiary of 150 colonies at a single load! and, as if two wagons were not enough, he has two such! Why, friend M., you fairly make those of us who find a 25-colony wagon large enough for our needs feel small. Yes, I should think you would want to go along with the load or loads; for if the bees of *only* one colony should break loose, sting those six horses, and if those horses should take a notion to run down one of those rough mountain roads, and if the wagon should tip over—my, oh my! I shouldn't want to be anywhere within a mile. I am well aware that I have stuck in a lot of ifs; but I suppose you go along so that if the bees break forth from one colony you will be on hand with that smoker to stop further proceedings instanter.—ED.]

Those bee-escapes: It is unaccountable how some bee-keepers, good ones too, feel that they can get along without them.—ED.]

### SUPERSEDURE OF QUEENS.

SHALL THE BEES OR THE APIARIST TAKE THE MATTER IN HAND? OLD AND YOUNG QUEENS.

By Dr. C. C. Miller.

Some think it is best to see that no queen older than two years is left in the apiary, while many of our best bee-keepers believe in letting the bees take care of the matter to suit themselves. I must confess I don't know for certain which is best. Generally I have allowed the bees to choose their own time for superseding. Of the 64 queens that started the season this year in the home apiary, 6 were reared in 1892, 25 in 1893, 8 in 1894 24 in 1895.

Four of the 1892 queens were superseded in April or May, and the six averaged very poor work in the supers, although two of them did good work. Although there were exceptions, I got my best work generally from the 1895 queens. It is noticeable that the 1893 queens exceeded in number those reared in 1894 and 1895. Especially noticeable is the very small number of 1894 queens, only 8. I think that may be accounted for by the difference in seasons. The year 1894 was a very poor season throughout, the bees giving no surplus, and not getting enough for winter. So there were not many queens superseded.

The year 1893 was a year of some surplus, so there were a good many supersedures. In 1895 the early crop was a failure; but the fall flow was fine, so there were supersedures enough. In general, it seems that the bees supersede their queens after a hard season's work much more than after a season of light work. Is it because the queens lay more in a good season?

Without going into particulars, I may say that I am well satisfied that it makes a good deal of difference whether a queen is superseded in the spring or the fall. Geo. L. Vinal may be right in thinking late-reared queens superior; but even if they are no better it is not hard to see why a colony changing its queen in April or May will not do so well. Take two colonies alike, and let one of them change its queen at the time when each has its hive about half filled with brood. No eggs are laid in the hive for a week or two, at the very time when it's most important, and one can easily believe that the colony which keeps its queen will surpass the superseding one.

But when the superseding occurs in the fall (and I think by far the greater part occur then) the hive is filled with bees, and the loss of a week or two in laying is scarcely felt. Moreover, the young queen lays enough longer in the fall to make up the deficiency; and this

later laying leaves the colony, in the opinion of many, in better condition for wintering, because of the larger number of young bees.

Some queens are better at four years old than some others at a year old; and as the bees seem to have good judgment, and supersede usually at the time when good queens can be reared, and when such rearing will be at least cost to the honey crop, it seems pretty good practice to leave the matter in their hands, especially as that is the easiest way for the bee-keeper. But then there are exceptions, a worthless old queen being sometimes retained, and sometimes being superseded at a loss early in the season, so there's a good deal in favor of at least sometimes taking the thing into one's own hands. If Mr. Doolittle is right, it might at least be well to make sure each fall of the supersedure of each queen whose colony had done poor work during the summer. He says if you put a queen-cell in a super about the close of the honey-harvest, the old queen will be superseded.

#### TWO QUEENS IN ONE COLONY.

It is nothing unusual for a failing queen to remain in a colony for a time with her laying daughter, but I have at present an exceptional case. June 19 I started a nucleus by putting into No. 36 a frame of brood with adhering bees and a three-year-old queen. June 23 I found the hive deserted by all but a very few bees. I don't remember how much I looked for the queen; but at any rate I didn't find her. I then put into the hive a frame of brood and bees with a two-year-old queen. This was a very yellow queen. July 8 I was surprised to find in the hive a very dark queen, the three-year-old queen I had first put into the hive. Looking further I was still more surprised to find the yellow queen. No mistake about it, there they both were, doing duty peacefully together.

A curious feature of the case is that the yellow queen shows she has had pretty rough treatment, her feathers being gone as well as her wings, except just a shred of one wing, while the dark queen shows no trace of ill usage. As there were scarcely any bees in the hive except those put in with the yellow queen, one would expect the other queen to be the victim of ill treatment.

To-day, Aug. 1, I have been down to the hive, and both queens are all right after 39 days of friendly association.

Marengo, Ill., Aug. 1, 1896.

#### STAYING UP FOUNDATION.

HOW WOOD SPLINTS HAVE BEEN TESTED ON A LARGE SCALE, AND FOUND TO BE A SUCCESS.

By B. F. Averill.

Noticing the importance that Dr. Miller attaches to the idea of using small sticks for supporting comb foundation in brood-frames, I give

below a plan I have adopted, and tested extensively for many years—almost since comb foundation was invented. My frames have a slot in top and bottom bars. The gauge of saw with which the slots are sawn corresponds to the thickness of the splints to be used—about  $\frac{1}{8}$  in. wide; and the thickness according to the strength of material used is a suitable size; and  $\frac{1}{4}$  in. longer than the distance between top and bottom bars after the frames are nailed up is the appropriate length. The number of splints to be used depends upon the thickness of the foundation, thin foundation requiring more splints. To put in the foundation, lay four or five of the splints with the ends fitted into the slots, and twice the distance apart that splints will be required; then lay the foundation upon these, springing the alternate splints into place as nearly midway between as possible. Then, having the foundation at a proper temperature, roll the splints, imbedding them firmly. A board of proper dimensions, and in thickness equal to half the width of frame material, will be required; also a roller, which can be conveniently made from a section of small spool by sawing off the ends and fitting it to a handle. No waxing of splints is necessary, as eggs deposited upon splints hatch, and the larvæ mature quite as well as under ordinary circumstances. It is necessary to have one side of the foundation very straight, and fitted closely to the top-bars; otherwise the combs are liable to bulge before being built out, and fastened at the top. I utilized splints for upward of 2000 frames in the season of 1885 at an apiary I established near Beulah, Miss.

The combs, with a few exceptions, where they were carelessly set up, were the most perfectly built that I have ever seen. There were a few irregular cells; but, having experimented with a desire to know, I found that this defect could be obviated by having the combs drawn from foundation sized to bring the cell-walls in perpendicular alignment with the splints. Under these conditions a splint nearly covered a perpendicular row of cells, making the arrangement of the separating walls of wax to be built so accurately in line with the splints that no defective construction of cells could be observed.

The time required to fasten foundation is insignificant. Four or five times as many frames can be filled by this plan as a man can possibly wire for foundation, and no considerable pains or skill is required. Combs are more rigid, and better adapted to uncapping where splints are incorporated in them, than those built in wired frames; and this method of fixing foundation can be safely employed to any extent with frames of ordinary proportions. I have handled many thousands of frames in numerous apiaries which I have owned; and where I have been employed, these foundation splints always gave better satisfaction than wires.

Now that the idea has been broached, I give this information thinking others may wish to adopt the plan, and that my experience may be of benefit to the bee-keeping fraternity. The apiary where I used splints most extensively is now owned by Mr. E. T. Divver, of Beulah, Bolivar Co., Miss., who will, no doubt, be willing to give any information desired regarding the durability of the splints in frames of nearly 200 colonies, that have been used for extracting ten years. I have combs in service in my apiary in Massachusetts that were filled with comb foundation upon this plan, and they are in good condition after fifteen years of service.

Howardsville, Oct. 26.

[The use of saw-kerfs in the top and bottom bars to receive the splints is an improvement on the Dr. Miller plan; and, by the way, you have ruthlessly taken from the doctor all the credit for the originality of the wood splints in place of wire. But I doubt if you can insert sheets of foundation in brood frames and wood-splint them faster than we can wire and fasten the foundation on the wires. When this latter is done by electricity the work is done about as rapidly as the foundation can be dropped on the wires.

I can scarcely believe that combs stayed by splints will be as perfect as those held by wires. Some years ago we used what we called folded tin bars to support the top-bars of the brood-frames when we wired by the old perpendicular plan. There was always a sort of "dead furrow" in the built-out comb right over that bar. It is true, that it was a trifle larger than the splints. But in justice to the doctor I must say that there are no "dead furrows" in the sample wood-splinted comb sent us by Dr. Miller.—Ed.]

lands subject to overflow. Before the frost had destroyed the bloom, and the honey was removed from the hives, our commission houses were filled with honey from farther north. I do not claim this market; but as long as I keep bees I shall sell the product at Peoria, Ill.

It looks like folly to me to ship honey to Chicago, and then have it shipped back to dealers in the same locality where it was produced. Our efforts should be to bring the producer and consumer as near together as possible. The consumer pays 20 cents per pound for his honey, and the producer gets 10.

#### WILLOW-HERB—*EPILOBIUM ANGUSTIFOLIUM*.

The botany tells us that this is one of the plants that spring up abundantly everywhere northward, where forests have been newly cleared and the ground burned over. It has a long succession of small pink-purple flowers, growing in corymbs or panicles, terminating the branches. My first acquaintance with this plant was while traveling from St. Johnsbury, Vt., to Lake Memphramagog. Most of the country was uncultivated, and covered with a small growth of trees. Whenever we came to a place where the woods had been recently burned over it was growing as thickly as clover in a meadow. The seeds grow in a pod; and when they open they give to the winds great numbers of downy tufted seeds.

The natives called it fireweed. I brought home some seed and let it loose in the wind of Illinois, but I've never seen a plant from my efforts. It is a great source of honey in Maine.

When fixing up the bees for winter, and had pried off the slotted honey-boards, I found the space above the frames filled with rich dark honey. I pried off the honey-board, laid it at the entrance, and with a wide chisel removed the honey from the top of the frames on to it, and the bees carried it back into their hives. All the hives are very heavy with stores. Bees are still carrying water, Oct. 26.

Peoria, Ill., Oct. 26. MRS. L. HARRISON.

[It may be you are right; but the editor of the *Bee keepers' Review* refers to that collection of statistics giving the honey markets of the country as "the most valuable and practical reading that has appeared in the journals for some time." From our private letters we have received a good many words of commendation for the same thing.—Ed.]

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#### HEADS OF GRAIN, FROM DIFFERENT FIELDS.

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#### REPORTS OF THE HONEY CROP AND PRICE DETERMINANTAL TO THE INTERESTS OF BEE-KEEPERS.

*Mr. Editor:*—I do not know that I am right, but it appears to me as if having reports from all parts of the country, of the size of the honey crop, and selling price, works harm to the producer. Supply and demand in any given locality ought to cut some figure in the price. Look at Dr. Miller. He has had off years enough to satisfy any reasonable person, and this year reports ten thousand pounds. Suppose his report had been: "Marengo, Ill. Short crop. Dr. Miller, 1000 pounds." Another producer, in a favored locality, reading this would conclude that Marengo would be a good place to ship honey to, and send forthwith a carload. The price that Dr. M. could get for his small crop would be infinitesimal.

I reported the honey crop at Peoria, Ill., as "indifferent." After this there was quite a fall flow of honey up and down the Illinois River, gathered from wild flowers growing on

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PROF. COOK SUSTAINED; HONEY NOT POISONOUS.  
At present I stand on the same ground as Prof. Cook. I have taken five bee-journals for years, and I have never seen a report containing conclusive evidence of the existence of poisonous honey, ripened and sealed by the bees. That poison sometimes finds its way into honey is not very surprising, when one sees that in nearly all cases (perhaps all) the honey reported as being poisonous comes from box hives (current September GLEANINGS, page

637). I have been familiar with the methods of box-hive bee-keeping from my childhood, and I don't care to experiment with their product personally. I have read and re-read the article of Dr. Stell, of Mexico, and am still trying to find out what possible connection his deadly compound had with "laurel honey."

Branchville, S. C., Oct. 30. A. T. PEETE.

[Nectar partakes very largely of the properties of the plant from which it is taken. For instance, honey from onions in blossom has a strong flavor of the onion or the plant itself. Dr. Stell made a tincture of the mountain-laurel leaves; it was fed to the bees in syrup, stored in the combs, extracted again, and, as reported, poisoned both the doctor and his helper, who had eaten it. The "missing link" that you fail to see is that the tincture of leaves and the nectar of the blossom from one and the same plant are much the same, though it would be fair to assume that the former might be the more virulent. If it were only half or one-fourth as much, I, for one, would prefer to let it alone. There have been a good many cases of poisoning from eating honey from poisonous plants and it didn't come from box hives either. But why should box hives be liable to receive poison any more than movable-frame hives? If honey is poisonous it must be from the source.]

The United States government through its Department of Agriculture, I am glad to say, is investigating all these cases, and ere long we shall see what the Department has to say. In the mean time it would be very wise to err on the safe side.—ED.]

#### FROM NEW ZEALAND.

Foul brood is very prevalent in this country. It is impossible to keep one's apiary free, owing to robbing done from box hives. Absconding swarms take up their abode in rabbit-holes on the hillsides, and die out from the disease. I keep it under by melting down old combs and rolling out fresh foundation. Some seasons the yield is very good, principally from white clover. One season 16 colonies yielded over 100 lbs. per hive, and increased to 32.

JOHN MOODIE.

Outram, Otago, N. Z., Sept. 5.

#### MRS. DANIEL COXE'S LARGE HONEY-YIELD.

Drifton is situated in Luzerne Co., Pa., in the heart of the coal regions of the State. As far as the eye can reach in all directions, great culm banks of coal dirt look like natural mountains out of the surface of which even weeds seldom have a chance to grow. The town itself stands several hundred feet above sea-level, and, with the exception of a few fields of cultivated ground, one would think bees would hardly find sufficient food to supply their annual needs. To show how the Lord provides the nectar in the flowery kingdom in ways past finding out by man, Mrs. Daniel Coxe, of this place, had 11 colonies, spring count, that gathered 2000 lbs. of honey, and her faithful gardener, Luke, who helps take care of the bees, was delighted when

super after super was taken off, just filled with beautiful capped honey. Wm. A. SELSER.  
Philadelphia, Pa.

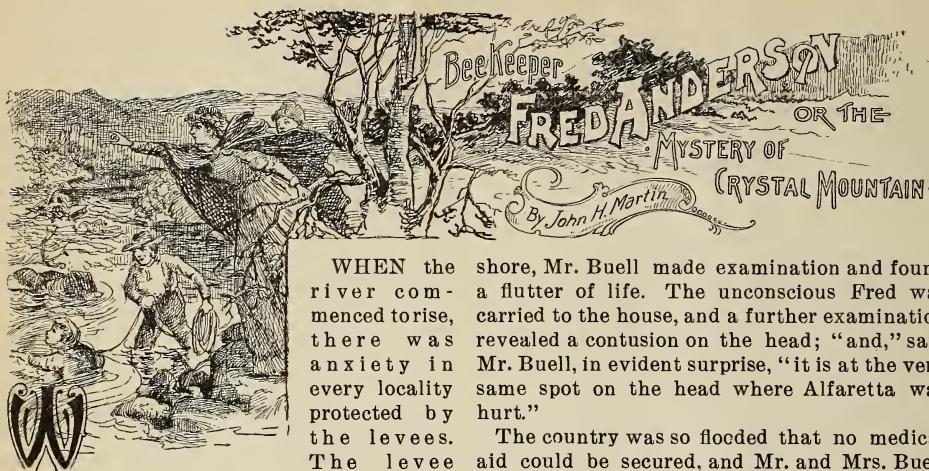


W. W. M., Fla.—You say you have four small colonies or nuclei that you desire to unite in one, and wish to know the best method. If they are scattered over the yard, some night put the bees, brood and all, from the several nuclei, into one hive. If this is not large enough, use two stories. The next day a great many of the bees will return to their old stands, where you should have awaiting them a hive to receive them at each old stand, with perhaps one empty comb. The next thing is to shake these all together into one box, smoking them a little to prevent fighting, and then dump them in front of the hive where you desire to leave them all together. You may have to do this on three or four successive days before you can get them to stay; and even then some of them will persist in going back. Doolittle would advise, after shaking the bees all together in one box, keeping them in a dark cellar over-night, and, then the next morning shaking them in front of the hive. This may be better.

D. K., Kan.—Sometimes a queen will behave as you relate in your letter. It may be because she is frightened. The method of introducing now is not to release the queen in the hive, but put her into an automatic cage and let the bees eat out the candy and release themselves. We have found that, when the apiarist himself opens the hive and lets the queen out, the general disturbance not only frightens her but causes the bees to attack her. It is very possible that in your case the bees were not queenless, or, rather, that they had something in the hive in the way of a queen-cell, virgin queen, or laying worker, which was regarded as a queen. In this event they would show hostility toward the queen; and it would not be surprising if she should try to get out of the hive, and behave as you describe. Most queen-breeders send out cages so arranged that the bees will release the queen in from one to three days. When this is done by the bees, and they are absolutely queenless, the new one is usually accepted.

In the case of the queen you obtained from the party mentioned, we would say that you ought to have sent in your complaint to him inside of 30 days, to the effect that she would not lay. All reliable queen-breeders are supposed to replace such queens. When complaint is made after 30 days, the breeder is under no obligation to send another, although we usually do so.

Nov. 15.



WHEN the river commenced to rise, there was anxiety in every locality protected by the levees. The levee below Mr.

Buell's protected thousands of acres of land from overflow. The water had reached the danger-point, and Mr. Buell and several interested neighbors had been up all night patrolling the levee, filling depressions and giving needed strength to the weak places.

The continued floods were, however, too much for the puny efforts of man, and near morning the levee went out with a roar, and much of the water on that side of the river was diverted into the new channel.

When the levee gave way Mr. Buell and the men went into the district liable to overflow, to save such animals as might still be lingering there. All manner of debris was now floating more leisurely, while the water was seeking new channels. Gimp called Mr. Buell's attention to several bee-hives floating by.

"Those are surely much like Fred's hives," said Mr. Buell. "But, dear me! it would be impossible for the river to rise to such a height as to wash them off that chalk butte."

Mr. Buell's cogitations were here interrupted by shouts. Alfaretta had gotten out early in the morning, as was her habit, and now came running along the shoal water, shouting and gesticulating. She soon came up to Mr. Buell, and, grasping his arm frantically, and pointing out into the water, exclaimed, "Our Fred! our Fred!"

Gimp had comprehended the situation before Mr. Buell, and, regardless of the floating obstacles, plunged into the water and made for a large object some distance out in the current.

Fortunately the water was not deep here, and, after an heroic effort, he brought to shore the raft. Alfaretta, Mr. Buell, and others who had been attracted to the spot, saw the limp form of Fred Anderson covered with mud, and apparently lifeless. His feet were so entangled in the bent and broken cross-pieces of the work-bench raft that it was some delay to disentangle them; but when released and laid on

shore, Mr. Buell made examination and found a flutter of life. The unconscious Fred was carried to the house, and a further examination revealed a contusion on the head; "and," said Mr. Buell, in evident surprise, "it is at the very same spot on the head where Alfaretta was hurt."

The country was so flooded that no medical aid could be secured, and Mr. and Mrs. Buell applied restoratives, and cared for Fred with the skill that their experience had given them.

Alfaretta was a constant attendant and an indispensable help in applying cooling solutions to the head. Gimp was also an anxious watcher and ever ready helper; but all day the stupor continued.

"His condition," said Mr. Buell, "is much like Alfaretta's—the contusion and now the long stupor."

"Yes," replied Mrs. Buell, "and I am anxious for his waking. And, oh!" said she, clasping her hands, "what if—"

"My dear," interrupted Mr. Buell, "do not borrow trouble; it surely comes fast enough without looking ahead for it. There will be a change soon, and we do hope for the best."

It was near morning, or about twenty-four hours from the time of the accident, that Fred began to show signs of consciousness. After several restive moments he opened his eyes, stared wildly, clutching the bed-clothing. Mr. and Mrs. Buell both spoke soothing words to him; but his vision was beyond them; he was living over again the wild ride on the turbulent river. Trying to rise, he shouted, in a husky, intense voice, "Matt Hogan! O Matt Hogan! come back! come back! Away, black fiend Dawson; your slimy hands away! help! help! O good angels! help—away! The fiend has clutched him. O Matt! dear Matt! lost, lost!" and with the severe exertion he fell back to his pillow with an incoherent laugh, and into unconsciousness.

"Sure, sure, this is terrible," said Mr. Buell. "Matt Hogan must have been upon the raft with him, and is lost."

"There can be no other interpretation to his words, though uttered in delirium," said Mrs. Buell. "It is terrible—terrible."

"It is certainly terrible," said Alfaretta; "but how much more terrible it would have been had we lost our Fred!"

It was again several hours before Fred show-

ed signs of returning consciousness. Meanwhile Alfaretta had been very quiet, watching the sleeper with intense interest. As her coherent remarks indicated, there was a mental change. When Fred did arouse, though there was the same vacant expression, other scenes were evidently before him, for, to the surprise of the watchers, he began to sing in a very low weak tone:

"The night is stormy and dark;  
My lover is on the sea," etc.

After a few moments of seeming reflection, Alfaretta said in a whisper, "Mamma, what a funny song! I really believe Fred is crazy."

"How like! how like!" said Mr. Buell.

"But strangest of all," said Mrs. Buell, "it is getting near to a case of transposition."

For an entire week these conditions continued. The good people were worn out with watching, and would have been entirely prostrated; but there was one encouraging aspect—it was near their hearts.

During Fred's most critical moments Alfaretta seemed to almost regain her sanity; and one day this was so pronounced that Mrs. Buell clasped her in her arms, and said, "So much like my former Alfaretta!" Hopes and fears alternated; prayers ascended.

As the days wore on there were still more favorable symptoms in Fred's condition; for one morning he awoke, and, rising up on his elbow, asked, quite rationally, "Where am I?" But before his question could be answered he lapsed again into the condition of dementia.

Fred was, however, full of vitality; and when the crisis had been passed he began to mend, not only in body, but in mind. With his recovery, and the abatement of anxiety in the family, Alfaretta lost all that she had gained, to the deep sorrow of the parents.

Just as soon as a boat could be trusted upon the river, Mr. Ghering and Jose Silvera, who was an expert with the oars, came down the river to inform Mr. Buell of the catastrophe at the butte, and of the loss of Fred and Matt. But his surprise was unbounded when he found Fred alive, but, at the time of his visit, unconscious. Mr. Ghering now became a frequent visitor; and his services as nurse and watcher gave great relief to both Mr. and Mrs. Buell. After two months of confinement Fred was able to make the return trip to the Ghering ranch.

His steps led him to the scene of his operations with the bees. The river was now running quietly where his apiary had been located, and the only portion of the chalk butte that remained reared a muddy front on the far side of the river.

"You ton't know how surprist we vas when we went out that morning and found you had been vashed away. We all felt so bad, that

rifer was so tearing mad, we say they drowndt sure; then we feel very bad. It vas a miracle von Profidence saft you; but I ton't understand why Profidence didn't safe Matt too. Matt Hogan vas one goot man, von splendid Christian."

"Yes, dear generous Matt," said Fred, as he wiped away his tears; "how I wish I had heed-ed your advice, Mr. Ghering, and slept at the ranch! Had I done so Matt would be alive to-day; but regrets never mend mistakes. As I told you, I thought the bluff the safest place; but I have now learned the destructive power of water."

The loss of his friend, of his honey, his home, and the upsetting of his plans, left Fred's mind in a dejected and morbid condition.

Mr. and Mrs. Buell discussed these symptoms, and arrived at the conclusion that, unless he was stirred to activity, he would also relapse into dementia.

"Fred," said Mr. Buell one evening, "I think



ALFARETTA WAS A CONSTANT COMPANION: MR. GHERING AT TIMES GAVE HIS AID.

it would do you a great amount of good to attend the State Fair at Sacramento. You are unhappy, and dwelling too much upon past occurrences."

"You know, Mr. Buell, I had planned to attend the fair, and had selected my honey for an exhibit; but the honey has gone, Mr. Buell—gone to Sacramento on the destructive route. I have no spirit to follow it. Mr. Ghering has a ditch to dig through his tule swamp, and I think that is about as high a sphere as I should aspire to—a clod to throw clods."

"Fred, I wish you would not talk in that strain. Know you, Fred, that you may be taken at your word, and a clod you will be. He who aspires to be only a clod will certainly reach the goal of his desires; and a person who thus makes a clod of himself should be content and never throw the odium upon a kind Providence who provides a higher and better sphere of action. Please to consider seriously my ad-

vice, for I have a commission for you to perform. I have been thinking much about Alfaretta since you were injured. We have noticed that, when she is most alert and excited, she is noticeably better. During the most critical period in your sickness we were greatly encouraged to find her so much like our former Alfaretta; but when the strain relaxed, and you recovered, she again dropped back to her old condition. We think more exercise would have a beneficial effect, and I wish you to find us a gentle riding pony for her especial use."

The idea of helping his friends, and especially of putting Alfaretta in the way of recovery, was the very strongest incentive to activity; and, while still disheartened, through duty, he mustered up enough energy to take him to Sacramento.

The change from the quietness of the rural shades for the bustle of the city, was indeed invigorating. The uproar of the city was augmented by incoming trainloads of people to attend the annual fair. The hotels were crowded to their utmost capacity, and the sporting fraternity seemed to have full possession of the city. The saloons, ordinarily plentiful, were increased for the occasion, and through them filtered the evil elements of the crowd.

Every hotel had its coterie of gamblers, and around the roulette and faro tables were little crowds intently watching the progress of the game, watcher and gamester silent, save now and then a subdued word or the continued click of the white and red counters as the game rapidly changed.

The same gaming evil was found upon the fairgrounds, but in a more extended sense. The races were on, and the sale of pool-tickets was plied with energy of voice and gesture. Flaunting women elbowed their way to the gaming-tables, and put down their coin with the men, blear-eyed and maudlin with beer. As Fred moved from point to point he felt that the entire city and fair was naught but an extensive gambling-den. There was one place, however, where no games of chance were allowed, and Fred was glad to escape from the gaming mob to the pavilion devoted to the exhibition of the peaceful fruits of industry. His interest in bee culture led him to search for an exhibit of the product of the hive. His perseverance was rewarded by finding a small but neat display. For a long time he leaned against the intervening railing, observing every feature of the exhibit. The neat sections nicely arranged seemed like old friends, and a tear came to his eye as he thought of the fate of his own beautiful honey. Regardless of the rushing throng of humanity around him, the scenes of that eventful night all came vividly to mind—the roar of the flood, the swift descent, tragic loss of his friend, his own rescue; but in all the changes of his day-dream the figure of the

lovely Alfaretta was ever uppermost until he was startled to activity by the sudden dropping of a hand upon his shoulder.



#### HOW FAR APART SHOULD BEES BE KEPT TO INSURE PURITY?

*Question.*—I have a select strain of Syro-albino bees which I wish to keep pure. How far apart from other bees must they be kept in order not to have my queens meet with drones from other apiaries?

*Answer.*—This is a question which confronts every bee-keeper who wishes to improve his stock by a careful selection, of the best out of his own yard, and one upon which "doctors" disagree. One writer, who is considered authority on the subject of queen-rearing, says: "There are some who entertain the idea that a race of bees can not be kept pure unless they are kept isolated several miles from all other races. I have tested this matter pretty carefully during the last twenty years, and have found that one-half mile is as good as a much greater distance." He then goes on to state the length of time the queen is gone from her hive on her wedding-trip, from which I suppose he arrived at the above conclusion. He gives this as five minutes, from which I conclude that it is supposed that a queen can not fly over one mile in that time (one-half mile and return); but, as will be seen, nothing is said regarding how far a drone may fly during that five minutes. Regarding the flight of drones, he says they "drones will sometimes fly a mile or more, but queens will not;" but about how long it takes the drones to fly that mile, nothing is said. But what is to hinder those drones from being that mile from home when the queen gets to the end of her half-mile? As I see nothing to prevent, it looks as if the author would have to admit that he drew his conclusions blindly, and that he has also left a very weak point in his argument. One fact is always stronger than many theories, or any thing based upon supposition; so I will lay a fact alongside of the above, and allow the reader to form his own conclusions in the matter. Near the beginning of my bee-keeping life there were no Italian bees nearer than five miles; yet occasionally I found some of my young queens producing hybrid bees, or those which were a part yellow-banded and a part black. My original stock were all black bees when I procured them, and the Italians were introduced five miles away after I had purchased the blacks. Not long after this a man four miles away Italianized his whole apiary, and the year following I found

nearly a third of my young queens giving hybrid bees. Being pleased with the work done by the bees from these queens, which showed that they had mated with Italian drones, I soon introduced the Italians into my own apiary, which, of course, put a stop to my observations as to the distance queens will mate; but from the above facts I am positive that queens of one race will mate with drones of another race of bees unless such are kept more than five miles apart. Nature has so ordered things that the best results possible to be secured are accomplished by the instinct which she prompts, and thus the queens from one hive or bee-tree are fertilized by drones from a distance, more often than otherwise, which secures a cross which prevents too close in-and-in breeding, and gives us a race of bees capable of doing the best work. That it would seemingly be more to the questioner's interest if it were otherwise, I am well aware; but for the honey-producer, and for the perpetuation of a hardy race of bees, the Creator has ordered things aright, in this as in other matters.

#### ITALIAN VS. BLACK OR HYBRIDS FOR HONEY.

**Question.**—I wish to know whether the light-colored, or what are termed Italian bees, are as good honey-gatherers as the black or dark hybrid bee. I have heard that the first-named bees are lazy.

**Answer.**—I have had plenty of black and hybrid bees in my home apiary in years gone by, and still have them in my out-apiary, as they do not interfere with my queen-rearing business, as that apiary is so far away; but as the years go by I am becoming more and more convinced that the nearer wholly Italian my bees are, the better honey-gatherers they make. To illustrate: Several years ago, when the basswood bloom was all gone I did not have a single section filled with honey. After a week or so the seed crop of red clover came into bloom, and the Italians; and hybrids commenced to work on it; but the blacks did almost nothing but consume their stores and carry what little honey they had in the sections into the hive below. The best Italian colonies filled their hives and stored from 30 to 60 lbs. in the sections, and the hybrids stored nearly in proportion, as they had Italian "blood" in them. Those that were apparently only a fourth Italian secured about enough to winter on, while I had to feed all the blacks, taking frames of honey from the Italian colonies to do the feeding with. Right here is where many make a mistake when they claim that hybrid bees and blacks will store more honey than the Italians, as it sometimes happens that the Italians, under poor management, fail to put as much honey in the sections as do the hybrids or blacks. Looking at the sections it would appear as if these bees were the best; but when we come to prepare the bees for winter, then we find that, while we have to feed

these to fix them so they will not starve before spring, every hive having Italians has an abundance of stores, and often enough to spare to put the others in good condition as to stores also. Some think that it is best to have the brood-chamber of the hives nearly or quite empty in the fall, as the hybrid and black bees often have them, so that they can sell the honey and feed the bees for winter, appearing to think that bees will winter better on sugar syrup than they will on honey. I know that bees will winter well on sugar syrup; but so far as my experience goes during 27 years of bee-keeping life, I am convinced that they do equally well on honey. It is a joy to feed a whole apiary in the fall of the year when the bees have stopped gathering honey, and one that is not to my liking, after having tried it several times from necessity. My belief is, the Italian bees are the very best in the world, taking all things into consideration.

Borodino, N. Y.



OUR bees are now in their winter quarters outdoors in double-walled and single-walled hives with winter cases. For packing we are using planer-shavings instead of chaff. The latter is lighter but not as easy to get. For actual wintering I can not see but that one does as well as the other.

#### THE GENERAL MANAGER, AND HIS OPINION OF THE PROPOSED CONSTITUTION.

MR. NEWMAN, General Manager of the Bee-keepers' Union, seems inclined to blockade the movement, already set on foot at Lincoln, looking toward the amalgamation of the two societies. He characterizes the proposed constitution as "so incongruous and incomplete that it seems necessary to refer it back to the next convention at Buffalo for revision." His criticisms, too late for this issue, will be given in our next. In the mean time I might say that neither the constitution committee, nor the Lincoln convention that approved it, expected that the instrument would be so perfect that it might not require some revision by the Union. At all events, I can not believe for a moment that the intelligent body of bee-keepers at Lincoln who discussed the constitution section by section would approve and indorse a document that was both "incomplete and incongruous." The more we haggle over details, the longer we shall delay the formation of the new society. It has been delayed long enough already; and if there are "incongruous" and "incomplete" sections in the proposed constitution, let the Union patch them up. But when the objec-

tionable sections are "explained," I think very little change will be found necessary. I might say more, but will reserve further comment, when the criticisms of Mr. Newman are published in full.

#### A NEW UNION AND A NEW GENERAL MANAGER.

The indications are that honey adulteration is on the increase in New York and Chicago. Glucose at 1½ cts. per lb. is being mixed with a little pure honey, and such stuff is being palmed off in groceries as the pure article from the hive, at a price far below what the genuine can be sold for. It is such competition that is doing more to reduce the price of extracted honey than any other factor. In the face of this, bee-keepers will not take kindly to the suggestion of General Manager Newman, of the Union, that amalgamation must be delayed still another year, because, in his opinion, the proposed constitution of the Union is "incongruous" and "incomplete." Bee-keepers are clamoring for a new Union that will take hold of the matter of adulteration, and I should not be surprised if they would clamor for a new General Manager. I do not wish to disparage the qualifications of Mr. Newman; but, located as he is, away from the heart of the country and the center of population, he can not personally look into and grapple with adulteration in Chicago and cities of the East, where the evils are the greatest, and where, too, the largest consumption of honey—good, bad, and indifferent—takes place. The Union, until recently, had its office in Chicago; but now the General Manager is located in California. It appears to me that a Manager so situated must necessarily be as much handicapped as a general would be who would try to marshal his forces a thousand miles away from the scene of battle. The new Union will have some battles to fight, and its General Manager should be on the spot, in the thick of the fight—not thousands of miles away.

#### WHY THE NEW UNION SHOULD BE DISTINCTLY NATIONAL.

ONE of the reasons for proposing to make the new Bee-keepers' Union distinctly national was that we might thereby be in better position to receive financial aid from the general government. When this argument was raised, doubts were expressed as to whether Uncle Sam would ever give us any money. But Mr. York, of the *American Bee Journal*, stated that he had it pretty straight that the authorities at Washington would do something. Mr. O. O. Poppleton, who has been visiting us, and who, by the way, had given Mr. York the idea, stated to me that it was not a government grant but government assistance in solving problems that are now perplexing bee-keepers. If it should be made international, no such aid could be expected.

The North American, at its last meeting, in

the proposed constitution to be submitted to the existing Union, recommended that the new organization be styled the United States Bee-keepers' Union. As such it could ask and receive material aid from the departments of the general government. For instance, a resolution from the national organization of bee-keepers requesting the Department of Agriculture to investigate the cause and cure of bee-paralysis would receive attention, and be acted upon by the department. A commission, doubtless, would be appointed, made up of the best scientists of the country, who would, at government expense, thoroughly study the disease. The report of their finding would be put in the form of a government bulletin. I am sure the few Canadians who have belonged to the North American will not begrudge the opportunity thus afforded. There are many experiments that should and can be conducted under the direction of the Department of Agriculture.

#### 'NOW-WHITE' SECTIONS, AND THE EFFECT OF CONTRAST.

Is it not a mistake to have "snow-white" (so-called) sections when the combs themselves, as a general rule, are darker by contrast? A darker or cream color for the wood sets off the honey much better; indeed, some bee-keepers, realizing this fact, in spite of the "fad" for snow-white sections, are demanding the cream colors; and as time goes on I am sure this demand will increase. A house painted white looks snow-white in the summer time, with a foreground of green grass; but in the winter, after a fresh fall of snow, that same house looks dark and dingy by contrast.

It is very well known that the wood of sections that have been on the hive for a time becomes discolored by—well, a sort of hive yellow that can't be scraped off or otherwise removed. Then there are the stains of propolis and travel-stains. While the propolis can be scraped off, the discoloration will remain. All of this soiling appears more glaring on a "snow-white" section than on one of a darker shade. Then, too, the honey will appear whiter in the darker wood. I grant that a genuine fancy white comb is white; but the No. 1 grade, as a rule, will be darker than the average of white sections on this market.

#### FRED L. CRAYCRAFT.

I AM sure the name above will sound familiar to most of our older readers who were with us when the "Juvenile" GLEANINGS was published. As a boy he was a contributor to that paper, grew up with it, and has been ever since an occasional contributor. His articles on bee-keeping in Cuba have been especially interesting. We had not heard from him recently until we happened to run across an account of a butchery that took place near the town of San Jose de las Layas, Cuba. Here is the account:

A detachment of Spanish soldiers surprised six insurgents, who, however, made their escape, which angered the Spaniards, and they began to raid the houses in the neighborhood, alleging that the inhabitants were in sympathy with the rebels.

The Spaniards went to the sugar-estate of Frederick L. Craycraft, who came here from Indiana about three years ago. Some of the soldiers entered the house, and two of them seized Mrs. Craycraft and she was brutally treated. The husband in desperation rushed to his wife's aid, but was struck down by a sword in the hands of an officer. Two terrible gashes were made in his back, and his right arm nearly severed. The Spaniards looted the house, took \$850 in cash, and then raided other houses on the estate. They burned eight buildings and shot and killed nineteen inmates, four of whom were women.

Craycraft, when he recovered sufficiently, wrote to Vice Consul Springer, at Havana. It is understood that the Vice-Consul cabled an account of the outrage to Secretary Olney.

I am sure our readers will all join with us in wishing that Secretary Olney see that full reparation is made. We shall be glad to hear from Mr. Craycraft direct. In the meantime we trust that Mrs. Craycraft was not one of the number who were slain.

#### LIGHT-WEIGHT SECTIONS A DETRIMENT TO THE PHILADELPHIA MARKET.

We have just had a pleasant call from Mr. W. A. Selser, of Philadelphia, the honey-man of that city. Among other things, he called attention to the fact that light weights in comb honey were a real detriment to his market. For instance, Mr. A will sell the combs by the piece; Mr. B by the pound. The former displays his honey and marks it 16 cts.; the latter displays his at 20 cts. Mr. B, as a consequence, is placed at a disadvantage. A customer approaches him and asks the price of his honey, and is met with the response, "20 cents."

"Humph!" says the customer, "I can buy it down at A's for 16 cts."

The fact of the matter is, both men sell the honey at the same price; but Mr. A's way gives the impression that his honey goes for 16 cts. a pound, when in reality he receives 20.

"But," said I, "why can't Mr. B. sell his honey by the piece?"

"He can," said Mr. S., "but here is the trouble: B's honey is put up in  $1\frac{1}{2}$  sections, and weighs about 15 ounces, while A's honey is put up in  $1\frac{1}{2}$  sections, and weighs about  $\frac{3}{4}$  lb. The general public do not discriminate between the light weight and the heavier honey; and the consequence is, the man with the light weight has the advantage."

Dr. Miller, I know, has often called attention to this matter, saying that he believed the whole light-weight business was a species of dishonesty, or at least something to that effect.

There is another view we can take of this whole matter; namely, that sections of thinner combs are drawn out, ripened, and capped over more quickly than sections of the same weight but of greater thickness. If the whole bee-keeping world should change over to the thinner section, Mr. A would have no advantage

over Mr. B. Perhaps Mr. Danzenbaker's taller and thinner sections weighing nearly a pound would solve both difficulties.

#### BIRDS, BEES, AND GRAPES.

In our last issue we had something to say regarding the depredations of the little bird on ripe grapes—how it made little fine pinhole punctures which had been hitherto attributed to the bees, but which are now known to have been made by a certain kind of bird with a very sharp beak. Prof. Green styled the bird a goldfinch; but the special markings of the little culprit itself do not correspond with the markings laid down in the Standard dictionary for goldfinch; and, moreover, we are familiar with the yellowbirds, and they are quite different from the grape-stabber, as we will call it for want of a better name. Well, whatever this bird is, it seems that the English sparrow comes in for a very large share of blame also. His birdship needs no introduction. In Bulletin No. 1 of the Division of Economic Ornithology and Mammalogy of the U. S. Department of Agriculture, I find this:

Among fruits, grapes appear to suffer most; and, although many grapes are raised without protection in places where sparrows are considered fairly abundant, there is every reason to believe that, sooner or later, this bird will discover and injure them wherever its increase is tolerated. It has been shown that grape-buds are frequently destroyed in the early spring; and the fact that one hundred and twenty-seven observers, representing twenty-six States and the District of Columbia, now (1888) bear witness to injury to ripening fruit, may well cause apprehension among grape-growers who have not suffered any loss as yet.

Those who have watched closely the movements of the sparrow when among the grapes agree that he pecks many more grapes than he eats; and his actions at such times, together with the fact that he frequently picks off leaves and shoots, which he does not eat, lend some color to the statements that he willfully destroys, simply for the pleasure of destruction.

In this locality we have not observed that the sparrow was actually puncturing the grape berries. We have noticed, however, that they were very numerous around our grapevines; and it is possible that they have been guilty of some of the mischief. I should greatly like to hear from our readers as to whether they have observed the sparrow puncturing grapes. While we are not supposed to be running a fruit-journal, we are desirous of proving that there are numerous birds, as Prof. Green stated, that puncture grapeskins, and that it is not the bee.

Counting what has been already observed regarding the bird grape-stabber, and what is already reported regarding the English sparrow, I think it is clearly proven that the little pin-hole punctures and other punctures are not made by bees; and while we can not deny that they may sometimes come in and make matters worse, they are not the real cause.

One of our neighbors, Mr. George Carrington, a fruit-grower, seeing the item in our issue for Oct. 15, reported seeing just such peculiar kind

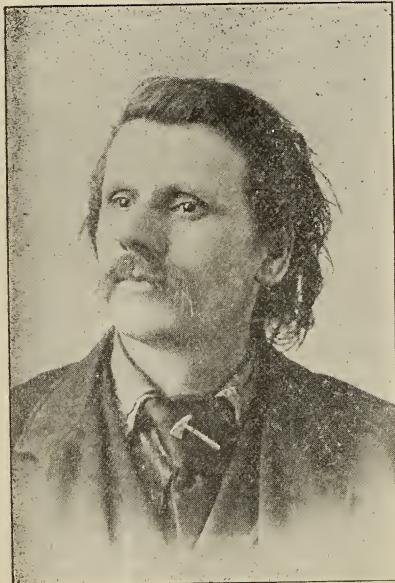
of birds, one or two of which he had shot. His description tallies exactly with the specimen brought in by Mr. George Thompson.

Mr. C. made one good point; namely, that the pinhole punctures were invariably on the *top* side of the grape, and that the lower berries were scarcely if ever pierced. If the bees made these original holes, the puncture would appear at almost any point.

Both Mr. Carrington and Mr. Thompson said that there appeared to be but very few of these birds; and Mr. C. gave it as his opinion that this grape-puncturing trouble could be entirely remedied by using the shotgun or rifle. As there are only a few of them they can be destroyed, and the grapes will be thus left intact.

#### BUCKSKIN CHARLEY.

THE subject of this sketch was a picturesque and interesting personage at the Lincoln convention. Modest in his way, he had a warm hand-shake for every one. When he introduced himself as Chas. White I did not recognize in him the "Buckskin Charley" and the crack shot who had written for us in times past—see page 362 for last year. Knowing that he had an interesting history as an Indian-fighter, pioneer, hunter, and bee-keeper, I asked him to give me a few facts from his life, and here they are:



Mr. White was born in Holmes Co., O., and lived in Ohio until he was 19 years of age. At a very early age he commenced to spend much of the winter season in the forests, trapping and hunting, going to the northern part of Michigan for that purpose. He killed his first

deer in Defiance, O., while a lad of only 12 years. He soon realized that that country was too tame, and consequently commenced to drift west until the fall of 1868 when he found himself in Central Nebraska, among Indians, buffalo, elk, deer, antelope, wolves, beaver, otter, wildcats, and a great variety of other game. He has hunted buffalo with the Indians, trapped with them, camped and eaten with them, and fought with and been wounded by them. He had a friend shot and killed by the Sioux while he was standing close by his side, in 1874. He has roamed over Kansas, Colorado, Dakota, and spent several seasons in the mountains. He went to Minnesota at the time of the big massacre, but, fortunately for him, the Indians had been captured a few days before. He had picked up a little knowledge of blacksmithing while in Ohio that stood him in hand after going west, as he could work in the shop in the summer and hunt in the fall and winter. The nearest shop east of him was 39 miles distant, and to the west the nearest was 75 miles. It was a government shop at Fort Kearney.

As the country became settled, he commenced staying at home, then he commenced keeping bees and soon became enthusiastic over them, reading every thing that would give him any light on the subject, until his friends called him an expert with bees. He has conducted a great many experiments in the line of bee-keeping, some of which were fairly successful. One was sending queens across the seas. Queen-breeding was one of his hobbies, and to get live queens and bees direct from Italy was one of his great troubles. He had seven queens sent from there at different times, without having one get to him alive. Thinking the fault was in the cage, he prepared one and sent a queen to Charles Bianconcini, Bologna, Italy, with instructions to change queens and reship, which was done successfully. The queen was in the cage 23 days before he released her. The one he sent was in the cage 18 days. In each shipment there were over 20 live bees with the queen on arrival, there being 40 at the starting.

Queen-rearing and the sale of bees kept his bees in poor shape for the best results in honey. Mr. White is a natural mechanic, making any thing of wood or iron that he wishes. He showed a combination section-closer and foundation-fastener at the World's Fair, called the Buckskin section-press No. 3, receiving a diploma and medal for it.

I requested Mr. White to give a particular account of what he had done with the rifle, and here is his reply in his own words:

In the winter of 1870 a friend and myself started to make a trip on the upper Republican River to get a load of deer. We followed the Platte westward, passing through Fort Kearny, going to the north of Plum Creek, going south from there to strike the Republican River. After leaving the Platte Valley we

were overtaken by a blinding snowstorm that compelled us to pull in on the head of Plumb Creek for shelter. At the point we struck, there was plenty of timber along the stream, and very high bluffs or banks that afforded us excellent shelter. As I got on the low ground I saw deer-tracks that appeared to have been made lately; but it was hard to tell which way they had gone, on account of the snow falling so very fast. I finally determined their course, and told my partner to unhitch the team and build a fire and I would get the meat.

I followed the deer about three hundred yards, and found them feeding on turkey-berries, a fruit that grows on a small bush. There were five of them in the band. The first four I killed with four shots, having them all lying on a piece of ground not larger than a town lot. The fifth one got away about three hundred feet before I killed it with the sixth shot.

At another time I killed two buffalo with one shot—a cow and her calf. They were running by me. The calf was probably six months old, and very fine, and I wanted it and the cow; and to get them both I would have to kill them with one shot. The calf was at the cow's side, with its neck even with her heart. Throwing my gun to my face, taking quick aim at the calf's neck I fired, when they both fell dead. The calf's neck was broken, and the cow shot through the heart. I consider it the finest shot I ever made. It was nothing strange to kill two buffalo at one shot, as I have done that frequently; but the calculation I had to make, and the rapidity with which I had to handle my gun in order to catch them both at the right moment, was where it required a trained eye.

BUCKSKIN CHARLEY.

#### W. C. FRAZIER.

THE subject of this sketch, whose name has so long been familiar to our readers, was born in Guernsey Co., O., in 1861. He is now engaged at his home in Atlantic, Ia., in general farming, raising stock, bee-keeping, queen-breeding, etc. He is very favorably situated as to soil, and has raised this year 35 acres of corn, half of it sweet corn for canning purposes. His field corn averaged 75 bushels per acre, 70 lbs. to the bushel. He also raised this year 15 acres of small grain and about 15 of potatoes. He has 1½ acres devoted to strawberries. He keeps from 40 to 70 stands of bees, most of which are used for queen-rearing, raising from 200 to 300 queens per year. Colonies run this year for extracted honey averaged about 100 lbs. Mr. Frazier does most of his farmwork alone, and all the work in the apiary.

He has been connected with the Iowa State Fair for the last six years as assistant superintendent of sheep and poultry, and has now some of the best Shropshire sheep obtainable. Mr. Frazier is also clerk of the township in which he lives, and is also director in an insurance company.

A view of some buildings sent was taken by friend F. Six years ago the land was a cow pasture. The income of the land has paid for the buildings. Mr. Frazier does not believe in keeping his eggs all in one basket, and hence is devoting his time to quite a variety of work.

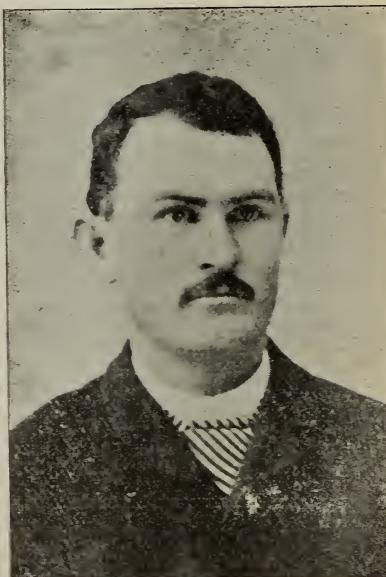
In a private letter he says he does not always expect to do his work alone, but does so now largely because skilled labor is so scarce.

It so happened that Mr. Frazier took the same train home that our company did. A political discussion arose among some of the passengers of the car. Mr. Frazier was an eager listener, but said little. One old fellow was berating the times, that every thing was down to starvation prices, that it was impossible for a farmer to make a living, and then ended up saying that nobody could produce corn at the present prices.

"What is that?" said Mr. Frazier.

Then our friend repeated the statement.

"Well, I want to say to you," said Mr. Frazier, "that I can produce corn at 10 cts. a bushel, and make money."



"I'll bet you have not any money in the bank."

"I am not a betting man," said Mr. Frazier, "but I have a little cash stored away in the bank for a rainy day, and I have made it off my farm too."

"Not producing corn," said his opponent.

"Yes, sir, corn helped to do it."

His opponent shook his head.

Mr. Frazier said if any one would call at his place he could prove his statement. Perhaps the above figures will explain the reason why Mr. Frazier can produce corn at 10 cts. especially when we take into consideration the fact that he does his own work. He is a stout, brawny-handed farmer, and looks as if he could do a smashing lot of work in a day; and I was told by his friends that he was just that kind of man.

## OUR HOMES.

Therefore shall a man leave his father and his mother, and shall cleave unto his wife; and they shall be one flesh.—GEN. 2:24.

In our issue for Sept. 15 I used for a text to head Our Homes the same one I am using today; but in that talk the line of my remarks was confined almost entirely to married people and those who are more or less advanced in life. I exhorted the husband and wife, as you may remember, to be kind and gentle to one another; to be careful during that period when the children are grown up and gone away, when Satan might get in and disturb that sacred relation that should always exist between husband and wife.

I am now going to talk a little to those who are yet unmarried—not necessarily to the young people, for there are many people of middle age, some others who are well along in life, who are not united in marriage. Many people live and die without being married at all. I suppose there are, of course, circumstances wherein it is best not to marry; in fact, the apostle Paul discusses this matter, as you may remember. My convictions are, however, after having lived more than half a century, and after having made many warm and intimate friendships, both with men and women throughout our land, that men and women should live together. Not only should there be boys and girls in our schools, and both boys and girls in the classes, and men and women in our churches, in nearly all kinds of business, but, more than all this, men and women should be united and in partnership in the *home*.

Every reader of GLEANINGS—in fact, almost every person nowadays—is taking more or less interest in the progress and improvement of the human race; and I feel sure that the foundation of every permanent and solid improvement in moral and spiritual matters depends upon having men and women side by side and in close companionship. As a rule I would urge people to get married somewhere between the ages of twenty and twenty-five. There may be circumstances when it is best to wait until they are thirty years old, but I think they are rare. T. B. Terry said in one of his recent articles that he would advise young people to get married when they are twenty years old, or a little more, because at about that age both men and women begin to be settled in their convictions and opinions; and it is a harder matter for them to change after that time; and he believed (and since he has suggested it I believe he is right) that the husband and wife should begin to bend their opinions and peculiar characteristics, each one toward the other, so as to agree with each other, before they are very far along in life. I think I have seen couples who had more or less disagreement through many years of married life just because they did not get married and become intimately acquainted with each other when they were young. Every little while the boys and girls in our establishment are getting married. I am always glad to know it. The boy who gives a good deal of promise while he is young is pretty sure to fulfill that promise if he gets married while he is young. It adds stability to his character.

Now please excuse me, dear friends, for saying something that many of you may think is not just the thing to say on a printed page; but I do like to see some *children* coming into the new home in due course of time—say in three or four years. It seems to supplement and finish the work that has been well started.

The husband and wife, from the very time in which they become father and mother, begin to be interested in our schools and in matters of education. They begin to read, and to attend to things they never paid much attention to before. They begin to be useful and valuable members of society. Please do not misunderstand me here. I do not mean that the young father or mother should be overburdened speedily with a larger family than they can well care for. You may tell me that these things can not be always managed, or at least be managed in a way that a Christian man and woman with the fear of God in their hearts would want to manage. I tell you you are wrong. Read the text of my last Home Paper, Oct. 15, page 759, and you will have your answer.

I have just had the pleasure of a visit of two or three days with our good friend O. O. Poppleton, of Potsdam, Dade Co., Fla. Friend P. and I are nearly of an age, and I think we pretty nearly agree in most matters pertaining to the morals and well-being of humanity. We both have children of our own. Friend P. has had a rather wider experience than my own, for he has spent two years on the island of Cuba, as you may remember. Well, in Florida—at least in many parts of it—there are more men than women. This is the case in California and many other new countries. Under such circumstances there are a good many unmarried men, and but very few unmarried women. As a matter of necessity, almost, the girls are engaged while they are still in school, and often they are married while they ought still to be schoolgirls. Not only are the younger ones soon married off, but there are almost no young or middle-aged women in California who are unmarried. Somebody is sure to want them; and I have a sort of opinion of my own that this "somebody" very often thanks God for them. Do you smile? My friend, if you have never thanked God for the wife he has given you, I wish you would commence right this minute doing so. After you have thanked the great Giver of all good, you may, if you chose, tell the good wife what you have done. You may tell her that her old friend A. I. Root has said it was the thing to do.

Well, down in Florida and out in California, after the schoolgirls are all married—some of them when only fifteen or sixteen years old—and after the middle-aged and elderly women are married, there are still unmarried men keeping bachelor ranches. There are not women enough to go around. What are they to do? The question has been soberly asked me a good many times. With the ample and rapid means of communication we now have between all parts of the world, one can order almost everything he wants. If apples are five cents a bushel in one market, and a dollar in another, our railways will quickly equalize the bad state of affairs on both sides. Can our railways remedy the unequal distribution of men and women? To be sure, they can. Now, do not be troubled, dear friends of the gentler sex. I am not going to advise you to go, either singly or by the car-load, where you are most needed. You would not take such advice, even if I should give it—at least, I hope you would not. What, then, shall be done? Why, these single men who need wives must go and fetch you. If they want you very bad they certainly can take the trouble to go after you in a gentlemanly and honorable way. Almost all of these people in Florida and California and elsewhere have friends back in the older and more densely settled parts of our country. Let these young and middle-aged men take a trip home. Go and

see your old mother, or visit your relations. You need not tell anybody why you came home on a visit, but you may tell the great God above. Ask him to direct you wisely (as he did the servant of Abraham when the patriarch sent him back to his kindred in Padan-aram, to get a wife for his son Isaac), and I shall have no fear about the result. Get acquainted with the women you may chance to meet or hear of. You might tell your *mother* or your *sister* that you feel it a duty to get married.

Why, I declare! come to think of it, it was a dear sister of mine who first wrote to me of a schoolgirl friend she had found. She wrote me that this friend of hers was the *best* girl she knew of in the world, and she hoped I would think just as she did. I took her advice, and I have never had reason to regret it. I shall always feel grateful to her because she used her woman's intuition and judgment, instead of permitting me to go along blunderingly, and imagine that some woman I hadn't known for a week was perfection itself. Then an older sister, a little later on, gave me some wise counsel that I shall always thank her for. She said in substance: "Dear brother, you two are both more than twenty years old. You will be happier, safer, and more valuable to the community *together* than you are apart; and the girl you have chosen will save money that you are now wasting in paying for board and otherwise." She was right.

Some of the brothers may say they have not the *money* to go east or north, and can not possibly scrape it up. Well, that may be true; but I think the matter may be managed even then. You are perhaps more or less acquainted with some good woman *somewhere* in the whole wide world—at least you ought to be. You are at *fault* if you are not. Get acquainted with her better, by correspondence; or correspond with the mother and sister I have mentioned, or some other friend. Now, no one need to understand from what I am telling you that every woman wants to get married, for it is not true. Even if you do make a mistake it is not a serious matter. No reasonably intelligent woman ever thought less of a man because he made such advances toward acquaintance, in a manly way. Write her a friendly letter; and if she replies, as she will be pretty sure to do, you can guess from the tone of her reply whether the correspondence had better be continued. I really do not *need* to suggest how the thing may be managed. If you are capable of doing business ordinarily, you can surely arrange this matter. Some of you may urge that I make the whole thing simply a business matter. I do not; but I do maintain that this thing that is called love between the sexes may be managed and controlled; and I believe that at my age I have had experience enough in that line to know whereof I speak.

Just one thought that I want to give you will cover the whole ground in regard to this matter; and God's Holy Spirit will, I believe, attest the truth of what I say. Let me put it this way: Some of you, perhaps (God grant, however, that not *very* many) may feel that you have made a mistake in choosing a partner for life. If not, may be you have at some time in your life been tempted by Satan to let such a thought come into your mind. For the sake of an illustration, let us grant, for instance, that you have chosen a woman unsuited to your disposition. Let us even go so far as to say that you would have been *very* much happier had you chosen some *other* one—some other woman with a better temper, with more physical endurance, better health, or something of that sort. May be some of you are so foolish as to

say you were induced by some outward circumstances to marry the woman you did not love and *never* loved. Let us grant any or all of these conditions—what are you to do? Why, you are simply to be a *man*—a man fashioned in God's own image. You are to say to the world, to your own self, and to the great God above, "She is my *wife*. Before God and man I made a covenant to *love, cherish, and protect* her; and no matter what comes or what happens I am *going* to do it. In business matters I am in the habit of keeping all my contracts; and I am going to keep this *sacred and solemn* contract made before God. If I married her without loving her I am going to commence loving her *now*. If her temper is bad, with God's help I am going to make it good. If her health is poor, and she is physically weak, then we are going to use all human agencies, consistently within our power, to bring her back to health. If that can not be done, then we will make her life as pleasant and easy as it can be made. She is my *wife* just as much as and just as truly as my daughter is my *daughter*, and I propose to be father to the one and husband to the other as long as God lets me live."

If a man can do this *after* he is married (and I know of a man who *has* done it with God's help) then a man can also do it *before* marriage. If I should urge each and every one of you to pick out a woman full of virtues, and having no faults (even if such a one could be found) you could not *all* have her. The idea is not only silly, but it is unmanly—unworthy of a good man. If you are perfect yourself, then you might demand perfection in your partner for life. The women who are not the sweetest-tempered and the strongest physically must be taken care of, and you might as well do your share in caring for them as to shirk the burden on to the shoulders of somebody else. In fact, you can not be a man in God's own image if you seek for or expect the *best* of every thing in this world of ours.

So far I have said nothing in regard to *handsome* women, and this phase need hardly be mentioned. God seems to have so ordered things that the woman who is most attractive to one man is not so to another. Furthermore, the simple matter of *looks* has but little to do with it. Of course, a woman may make herself attractive, and *vice versa*, by her manners and her dress; but her behavior has very much more to do with it than either. A woman who has a Christlike spirit in her heart will always be pleasant and attractive. If she is lacking in almost every thing else this one thing may atone for it all. The good and useful women of the present age are not, as a rule, the handsome women. Almost any woman will be handsome and congenial when you get right well acquainted with her. This matter is so well known that in shops and factories, in offices, and in the business affairs of life, it has been found unwise to have two of opposite sex thrown together very much unless circumstances are such that it does no harm if they get to be friends and get married. This very fact alone, which repeats itself day after day and year after year, should convince us that love so often goes where it is sent that we may almost lay it down as a rule that almost *any* man or woman may learn to love each other if they try hard. I have watched this thing with great interest all through a long and busy life, and I am sure I am right. Sometimes where a woman is suddenly taken away, leaving quite a family, a sister is induced to take her place, first as housekeeper, then as wife and mother. Had it not been for the untimely death, the two might never have thought of such a relation

as that of husband and wife. Do not these two love each other? Why, it very often results in the happiest relations. The step mother is, generally speaking, very much better fitted to be mother to her sister's children than any other woman.

Now, then, ye friends and brothers in Florida, California, Arizona, and anywhere else where women are scarce, do not be over particular. If you can do so, make a pilgrimage, as I have suggested, to some place where there are more women than men, and help the world along by evening up these things. It is far better to do this than to marry little girls who ought to be in school. Use your wits. Go about in the world and get acquainted; and after you have tried contrasting the life of a married man with that of keeping a bachelor's ranch, if you feel like thanking God, and thanking a little, too, your old friend A. I. Root, write and tell him so. In fact, I have already had many thanks just in this line.

A few days ago I saw a list of statistics where it stated that men who had once been married were much more likely to be married again, than those of the same age who had never been married at all. Look about you and see if it is not true. Then, again, please consider, dear friends, whether it is right for you to have a place here in this busy world of ours without doing something to keep the world going and moving. You can not take very much interest in schools unless you have children of your own. You can not be very patriotic unless you are going to help hand down the accumulated wisdom of this present age to the coming generations. If you have proposed in your mind to live and die single, and without children of your own, you certainly can not urge other people to take you for an example and do as you do. Why, if we all followed you there would be scarcely a human being on the face of the earth in just a hundred years. The whole world is just now making a terrible stir because of the Armenian massacres and cruelties, and well it should make a stir, for they are cutting off by the hundreds and thousands the people who constitute a part of the population of the world. But your plan of action would result in sweeping the population off the *whole face of the earth* in just a few years. You may say, "Oh! I do not ask other people to do as I do. They can do as they please, and I will do as I please." All right, my friend. Go on in your own way; but remember you are not "in the swim," if you will pardon the expression. You are one of us, it is true; but you won't be very long.

Let me say in conclusion that this talk has been given with malice toward none and charity for all. I have given it as my opinion, from my standpoint. You can take it for what it is worth. Of course, I take it for granted that the readers of GLEANINGS are intelligent, law-abiding, pure, and virtuous men and women. I do not recommend that we should propagate crime by advising criminals to get married; that is, I would not advise them to get married until they have repented and have chosen Christ Jesus for their counselor and guide.

Under no circumstances would I recommend or encourage for a single instant this matter of advertising for a partner. Even if good results have come from such a course, I am sure it is not the right and manly or womanly way of doing things. Let me give you one illustration: A bee-keeper with whom we have dealt for quite a number of years, all of a sudden made a pilgrimage to Medina. He did not at first tell me why he came here; but in due time he let out little by little the state of affairs. Somebody from Medina advertised in some periodical,

representing that she was a woman of means, good-looking, young, and of good reputation. Our bee friend did enter her home; but he did not stay very long. Had he known what he found out a little later, nothing in the world could have induced him to ever set foot on her premises, even for a single instant. I hardly need tell you that not one of the statements in the advertisement was true.

#### THE OHIO ANTI-SALOON LEAGUE.

Perhaps not all the readers of GLEANINGS are aware that there is a periodical published, entitled *The Wine and Spirit News*. It is the organ of the Ohio State Liquor League. As the readiest means of telling you what the Ohio Anti saloon League is doing, I present some extracts from the *Wine and Spirit News*:

"We note that the Rev. Howard H. Russell never loses sight of a good thing. Either in person or by proxy he attends every church conference and Sunday-school gathering in the State, where he poses as a hero, and endeavors to hitch the Ohio Anti saloon League on to the machinery of the church work. Beyond any question he is the most pestiferous and annoying crank the saloons of Ohio have had to deal with."

"Ever since its existence, the so called Anti-saloon League, which claims to have members in every county in the State, and also being the strongest organization in the State, has used all kinds of means to have more prohibitory and fanatical laws passed by our assembly."

"One year from this fall we have to elect our next Assembly. If we are not completely organized by that time, and the Anti-saloon League elect their people, the same as last year, we may as well close up our business, as they again will use all means to wipe out the liquor traffic, or otherwise make it so strong that we can exist no longer. United we stand, divided we fall."

"In every city and town in the State the Anti-saloon League is secretly forming branches, with the avowed purpose of controlling primaries and thereby securing prohibitory legislation. They have in the past dipped deeply in all the town elections, and, be it said to the shame of the disorganized saloonmen, that in some towns they have succeeded in carrying their point."

"If the Anti-saloon League isn't at present harassing you in your own town, it soon will be, as they are pushing and extending the order all over the State; and when your town is reached, let us see you in position to ask of your community your rights under our statutes, from which no honest, public-spirited citizen can recede."

"A poll of the newly selected members of the legislature was taken in regard to their position on the Haskell bill, which demonstrated that the majority of the members were in favor of the passage of said bill."

"The Legislative committee was instructed to solicit funds, and use all honorable means to defeat the passage of the Haskell bill, and seek a modification of the present laws, especially the law forbidding the sale of intoxicating liquors within two miles of an agricultural fair, and the Adair law."

"The opposition to the liquor traffic is the Anti-saloon League, which is strongly organized in every county in the State. Without any financial benefit, it has been using all kinds of means to have bills passed by the legislature which would be disastrous to our business."

Please notice the grand compliment they pay us in the expression, "without any financial benefit." You see the saloon-keepers and whisky-men can hardly comprehend how anybody, much less a great body of people, should work with such untiring zeal in any thing where they do not expect to make money by it. They are associated together for the express purpose of getting money, and they do not care a fig how they get it. If they would only knock people down in the streets, and rob them of their money, it would be a small matter comparatively; we could afford to let them go on; but in order to get hold of a few pennies and

nickels they propose to go to work in a systematic way to cultivate a taste for strong drink—see page 796. Now, because we value the souls of our boys more than we do money, they can not understand it. They have hit the truth exactly when they say, "We might as well close up our business," if we are permitted to march on as we expect to do.

The following comes from the manufacturers of the type on which GLEANINGS is printed. It was sent out as a business circular; but it makes such a tiptop little sermon that I have taken the liberty of giving it to you. It may not hit us all exactly; but I am sure, dear friends, it hits a good many of us more or less. We do not know—in fact, we absolutely can not comprehend—how much better off we are, so far as the comforts of life are concerned, than were the people who lived only forty or fifty years ago.

#### A PLEA FOR GOOD TIMES.

"Hard times! hard times! come again no more!" We all sing it, we all hope it, but do we know what hard times are? We sing it while we eat beef-teak at twenty cents a pound, oysters at fifty cents a dozen, and three kinds of bread at the same meal; while we think it while we stretch our comfortable legs on Brussels carpet, before a blazing grate, with well-groomed boys and expensively clad girls around us; we shout it to our neighbors across our smooth lawns or through our plate-glass windows; we groan it as we read our morning and evening papers, our plentiful magazines, and our costly libraries; we dream of it in our soft and springy beds, while our coal-fed furnace keeps the whole house warm; we maulder about it in our well-equipped offices, shout it through our telephones, ring the changes on it as we send telegrams and take expensive summer outings. We meet in our political, social, literary, and business conventions, and ring the changes on it while we are spending fortunes with railroads, hotels, restaurants, and places of amusement. And yet, in these days we do not know what hard times are; we think we do, but we do not.

The writer knows of a time within his remembrance—and he is no patriarch—when, in one of the richest parts of one of the most favored States in the Union, the whole town of some two thousand inhabitants possessed all together not over \$300 in money; all exchange was by barter; there was no cash payment because there was nothing to pay with. Among the best and richest families (and there were many who thought themselves well-to-do) beefsteak was a once-a-week visitor; round beef was a luxury; oysters were an unheard-of dainty; corn bread was the usual food, wheat the rare; . . . cold bed-rooms, scanty wool fires, woolsey and calico were in the house; 6 x 8 window-panes were helped out by hats, old papers, and rags; a weekly paper was an extravagance, and served several families. Ten books made a good fair library; beds were slatted or corded; rag carpets were occasional, ingrain scarce, and Brussels a tradition; the sole vacation was a ride to the annual picnic in the one horse shay; nobody had time, money, or heart for conventions or amusements. We men worked from 5 A. M. to 7 P. M. (the aristocrats shortened the time by two hours), and the women worked at all hours. And yet it is doubtful whether there was in those times such a universal spirit of unrest and discontent, such a concert of growling, as to day. Is it fair? Are we just? Can we afford to waste time in bewailing hard times, when times are easy on us and treat us far better than we deserve?

Let us put aside these ugly tempers of ours; look toward the sun; smile at the shadow; all sunshine makes the desert; it's a pretty good world of ours. Enjoy its beauties; let us borrow no trouble; shed light on our neighbors; quit us like men, and times will seem (as they are) good.

#### HOUSE FLIES.

Wife says she is sure there are more feminine readers of GLEANINGS than herself who have long been anxious to learn if you were successful in

keeping the flies *entirely out of your kitchen* this summer. You remember last winter you were very sure there would be none (see p. 149, GLEANINGS for Feb. 15). Our plans in that line always require modifying somewhat before the summer ends, so please tell us about it soon. CHAS. CHAPMAN. Watkins, N. Y., Oct. 27.

My good friend, there were not any flies—that is, of any account—in our kitchen last summer nor any other summer since I can remember—that is, our kitchen over home. There would not have been any at all; but the children and "papa" could not be broken of the habit of holding the screen-door open occasionally, therefore a few did get in. These were trapped with sticky fly-paper, and "spanked" with a folded newspaper until the flies decided that *that* locality was not conducive to health and enjoyment. Over here at the factory they were a good deal worse. In fact, the cook did not have a tight kitchen so as to keep them out, as we have over at our home; and, come to think of it, I believe they were a little worse during the past season than ever before.

I have just been reading with great interest a government bulletin from the Department of Agriculture. The subject is "Household Insects." Quite a part of the book is devoted to mosquitoes and house flies; and here for the first time in my life I found out where houseflies are propagated, and how long it takes them from the laying of the egg to maturity. Let me go over it briefly. They breed in manure and filthy dooryards. The number of eggs laid by a single individual averages about 120; from the egg to hatching, a third of a day; from hatching to first molt, one day; first to second molt, one day; second molt to pupation, 3 days; pupation to adult, 5 days; total life-round, approximately, 10 days. There is thus an abundance of time for the development of 12 or 13 generations every summer. The principal part of the propagation of house-flies is from stables. We may cut off the supply by using air-slacked lime on the manure to kill the larvae. My impression is, however, this would liberate the ammonia so as to cause a loss in the fertilizing value of the manure. Let me quote from the bulletin in regard to the best method of getting rid of the fly nuisance:

A careful screening of windows and doors during the summer months, with the supplementary use of sticky fly-paper, is a method known to every one, and there seems to be little hope in the near future of much relief by doing away with the breeding-places. A single stable in which a horse is kept will supply house flies for an extended neighborhood. People living in agricultural communities will probably never be rid of the pest; but in cities, with better methods of disposal of garbage, and with the lessening of the numbers of horses and horse-stables consequent upon electric street railways and bicycles, and probably horseless carriages, the time may come, and before very long, when window-screens may be discarded. The prompt gathering of horse manure, which may be treated with lime, or kept in a specially prepared pit, would greatly abate the fly nuisance; and city ordinances compelling horse-owners to follow some such course are desirable. Absolute cleanliness, even under existing circumstances, will always result in a diminution of the numbers of the housefly; and, as will be pointed out in other cases in this bulletin, most household insects are less attracted to the premises of what is known as the old-fashioned housekeeper than to those of the other kind.

#### MAPLE SUGAR WORMS—A MISTAKE.

On page 787 there is a report from Mr. Herman F. Moore, to the effect that maple sugar is to be honeycombed by worms. When I first saw this I felt almost certain it was an

error. I have been acquainted with maple sugar more or less all my life, and never saw any thing of the kind. The holes through cakes of sugar are caused by syrup leaching out. The worms that friend Moore found had got into the sugar by accident. The following, from our U. S. Entomologist, corroborates what I have said:

UNITED STATES DEPARTMENT OF AGRICULTURE,  
DIVISION OF ENTOMOLOGY,  
WASHINGTON, D. C.

Dear Sirs:—The insect which you send with your letter of Oct. 31, and which was sent to you by Mr. Herman F. Moore, of 6203 State Street, Chicago, Ill., is one of the common grain-worms known as *Plodia interpunctella*. This insect is ordinarily found in farinaceous material, and its occurrence in maple sugar was probably accidental. It was probably crawling away from its original food to find some good place in which to spin its cocoon.

Nov. 2.

L. O. HOWARD,  
Entomologist.



#### ON THE WHEEL.

My first wheel, as you perhaps remember, was a Columbia. My second was a Columbia; my third was a Victor flyer; the next was a Victor racer; then a Rambler. The one I have been riding for the past season is Remington racer weighing 19 pounds. When my weight was down to 110 or 115, I found that an 18 or 20 lb. wheel did very well; but since I have regained my health, and now weigh from 132 to 135, I find a little heavier weight advisable. While I can still ride the light wheels, I do not like to risk going down one hill and up another, especially where the ground is a little rough at the bottom, as I would do with a heavier wheel. Another thing that has induced me to make a change was that I have felt rather anxious to test one of the latest make of the Columbia, made by the Pope Manufacturing Co. The result is, that now I am riding a 25-lb. Columbia; and I shall have to admit that it is the easiest-running wheel I have ever got hold of. The gear is 70\*; and for climbing hills I believe I do not want any higher gear. With this I can go up or down any hill that one is likely to find on a decent wagon-load.

During the last few days I have been having rare enjoyment in riding before some of our October gales. For the greater part of the past week we have had a pretty severe wind from the south; and as there were several places I wanted to visit a few miles north of here, I took advantage of the wind. Without very much effort one can easily keep up with a pretty heavy blow. The result is, you scarcely feel any wind at all; and for the most part you are in almost a dead calm; and it seems funny to see the trees bending at each side of the road, and hear the wind whistle while you do not feel it at all. Two miles and a half north of here I passed the old farm where I spent a considerable part of my early years. The old orchard where I helped to plant the trees attracted me especially. Great quantities of apples have been going to waste in this orchard. The owner says he has been buying pigs all the while

in the effort to get enough to eat up the fruit; but the apples are still ahead of the pigs. Over on the east side of the orchard were two trees that I think father and I purchased as fall pippins. Some of the fruit this season weighed 1½ lbs. each. You see an apple could be sliced up like a watermelon, and it would do very well for a whole family. I believe that, as a rule, these monstrosities are considered coarse; but I did not find them so at all after my short wheel ride. As I had a ride of ten or twelve miles before me, I ventured on eating two pretty large-sized pippins, and it turned out just as I felt sure it would—they did not disturb my digestion at all. How I did enjoy that ride that afternoon, up hill and down, through Beebetown and Strongsville! I remember of thinking about the middle of the trip that the greatest event in the way of giving health and muscular strength to the people of this age was, without question, the advent of the wheel. Has any prominent doctor—in fact, have all of the doctors—contributed so much to the cause of health as the manufacturers and venders of the modern wheel? I leave you to answer the question. I am sure nothing in the whole round of amusements and recreations has come anywhere near giving mankind so much real solid wholesome enjoyment as wheelriding. There may be some evils connected with it, as with almost every other form of recreation; but it seems to me they are few and small compared with their advantages. It takes the patient into the open air. It stimulates him to use his muscles. It wakes him up and stirs him up. It gets him out of ruts (sometimes into them, of course) and out of stagnation; it is conducive to kindly feelings toward all humanity; it prompts the rider to "think no evil," but to get out of and above little spites and prejudices. It helps him to have faith, and to believe that he is in real truth created in God's own image. Long live the veteran establishments that have given these beautiful wheels to suffering humanity! If I am correct, the Pope Mfg. Co. are not only pioneers in this missionary work, but they have been from the start one of the largest concerns, if not the largest, in the world; and somehow or other I feel sure that their product is equal to any thing made anywhere.

In the vicinity of Strongsville I visited what is called the great pumping-station. This institution, with massive, beautiful modern machinery, pumps oil from almost all of the great oil-fields in Ohio. This oil is stored in a huge tank having a capacity of 28,000 barrels. From this tank it is pushed through pipes by means of powerful pumps to all the principal oil-refineries, no matter where they are located. Instead of hauling the oil from place to place on the cars they simply pump it through great pipes laid under ground. When asked if they permitted visitors to look about the premises, the clerk replied in a very good-natured manner that I could go anywhere and ask all the questions I pleased provided I did not use tobacco and would not be scratching matches so as to endanger their property. Now, he did not know, as the readers of GLEANINGS do, that I could be quite safely trusted so far as that part of it was concerned.

In order to save fuel they condense all the steam made by their great engines. This steam is condensed by a stream of cold water. The water soon becomes quite hot in performing its office, and it is therefore pumped into a sort of race exposed to the open air. The water in this race runs around the margin of a pond that covers perhaps an acre of ground. After it has had time to cool off in the open air it is taken into the works, once more to go over its office of condensing exhaust steam.

\*I should mention, also, that this wheel is made with an eight-toothed rear sprocket; and I believe the general decision is that such a sprocket has much less strain, and consequently is easier, than the smaller seven-toothed sprocket.

Toward sundown I turned my wheel up to the neat little home of Mr. Mohn, who has charge of the branch experiment station of the State of Ohio, at Strongsville. They had just finished digging their field for testing the different varieties of potatoes, and we had quite an interesting time in comparing notes. Friend Mohn has been improving these beautiful October days in having their ground thoroughly underdrained. The farmers of the State of Ohio have complained several times that our experiment stations confined their experiments too much to the best kind of Ohio soil. Said the farmers: "We want you young professors to try your hand on some of the poorest clay soils of Ohio; for inasmuch as we can not all have the best soil, or even tolerable, we should like to know how to manage farms on poor land."

Friend Mohn has been trying to answer this question the past season, for his farm was selected as being some of the poorest soil naturally, to be found in the State of Ohio. He has decided that even the poorest ground should be underdrained. In fact, this stands at the bottom of all success in farming. The past wet season has put a most positive emphasis on this point.

#### CAN WE AFFORD TO BUY CHEMICAL MANURES AT PRESENT PRICES?

The decision is, if I am correct, this past season, as it has been before, that it does not pay to use chemical fertilizers where crops are to be sold at the ordinary market prices. If you are growing choice potatoes for seed, or choice grains for the same purpose, it may pay. But even then stable manure, where it can be had at any thing like the usual prices, is very much cheaper than the chemicals.

#### UNDERDRAINING BY MACHINERY.

The same machine that I saw at Wooster, O. (see page 751, 1893), has been in use at Strongsville at the experiment station. They have this fall been digging ditches and laying tile and filling the ditches for the small sum of 15 cents a rod; and friend Mohn says they can do it ever so much better than it can possibly be done by hand, and I think he is right about it. Just try it and see, friends, whether you can make a good ditch 30 inches deep, and lay the tiles and fill it up, for 15 cts. a rod. If you can not, several farmers had better club together and get a ditching-machine to come and do the work for them.\*

Well, it was almost sundown, because I had visited long, and the wind would be right in my teeth going home. I had hoped it might abate enough so as not to be much of a hindrance on my return; but it did not seem to be inclined to abate a whit. Now, although I had come 14 miles from home almost without effort, or without conscious effort, I knew I should have a tremendous pull to get home again with that wind, even by bedtime. Half a mile away was a railway station, and a train was due in the course of fifteen or twenty minutes; so I very wisely took the train back home. By the way, it seems to me there has been some borrowing of trouble on the part of our railway companies because the wheel, as they take it, threatened to be a competitor in methods of travel. My impression is, however, that, in the long run, the railways will have more business because of wheels. They may have to work cheaper. In fact, the electric railways are already opening the way for lower rates of travel; but in the end all of these things are going to work together for good. Why, dear

friends, we have a scripture text to prove it. It does not exactly mention wheels and troll' cars, but it says, "All things shall work together for good to those who love the Lord."

#### HOME-MADE HAND-MADE BUSHEL BASKETS.

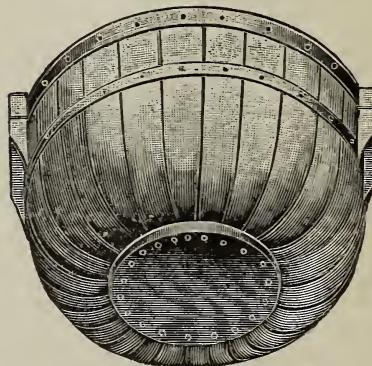
A few days ago, while I was standing in front of our store, a farmer who was passing asked, "What do you sell those bushel baskets for?" I told him they were 20 or 25 cts., according to the quality. But one of the boys corrected me by saying that there was a basket we sold for only 15 cts.

"What! an oak-stave basket for only 15 cts.? Are you not mistaken, Frank?"

"No; I am sure I am not mistaken, Mr. Root, for they sell two of them for a quarter."

"Two for a quarter? Why, where in the world did our folks buy them so they could be sold at that price?"

After selling the man a basket I interviewed Charley, who has charge of the counter-store and he said there was a basket-maker over in Weymouth, five miles distant, who was so anxious to have something to do during these dull times that he was actually making a good stout serviceable oak basket, like the one in my hand, so that we could retail them as I have said. My curiosity was aroused, and in less than an hour I was having a pleasant chat with the basket-maker. He is a stone-cutter by trade; but business being dull, and being anxious to pay his rent, send his children to school, etc., he had figured the thing down to these exceedingly low prices rather than do nothing. His shop was a little room perhaps 15 x 20 feet, in an upper part of his little home. I am going to try to tell the readers of GLEANINGS how he makes baskets. Let me give you a picture of the basket first.



Not very many tools are needed. What he has are, I believe, all home-made, or made with the help of the blacksmith near by. First we want a form for the basket so as to have it hold an exact bushel. This form is made of wood covered with heavy bands of iron wherever nails are driven. These heavy iron hoops are to clinch the points of the nails as they strike them. The form stands up about three feet above the floor, in the middle of the room. The form is just the shape of a bushel basket bottom up. In the center, where the bottom of the basket comes, a steel rod runs up two or three inches. A thread is cut on the rod, and a steel burr runs up and down on it. The first thing is to make the bottom of the basket. This is composed of two wooden wheels 9 inches across and  $\frac{3}{8}$  thick. He makes them of  $\frac{3}{8}$ -inch basswood which he gets at our factory. Colored and knotty boards will answer for baskets as well as any. The two wooden wheels are

\*The address of the manufacturer of these ditchers is J. B. Hill, Bowling Green, Wood Co., O.

nailed together so as to have the grain cross, to prevent splitting. But before the wheels are thus nailed, the basket splints must be put in place. These wheels have a half-inch hole through the center. This hole permits them to slip over the steel rod or standard that sticks up out of the form. Then the nut or burr is screwed down so as to hold them at just such a distance apart, while the ends of the splints forming the basket are pushed between the board wheels.

Before we go any further, however, we must provide ourselves with splints. These splints are made of red oak. I notice by the basket which I have in my hand that the splints are about 3 inches wide—may be a little less. The thickness of each stave is only a plump  $\frac{1}{8}$  inch. In each basket there are about 30 staves, and these staves must be gotten out some way without much expense. My good friend Roberts goes to the woods and cuts down a suitable large red-oak tree. With a crosscut saw he cuts it up into lengths of about 3 feet; and after he gets home these lengths are once more cut in two, making 18-inch blocks for staves. These blocks are then split up with a frow (such as people used for making shingles years ago), so that we shall have planks split out about 3 inches thick, the width of the staves, said pieces of plank being 18 inches long.

Now, the staves of our basket must be tapering; in fact, each one must be tapered pretty nearly to a point where it comes between the wheels that make the bottom of the basket; therefore these 3-inch planks must be tapered so as to look like a very wide wooden wedge. He tapers them with a drawknife, similar to what coopers use. It takes a good deal of hard work to do this tapering by hand; but he says he can taper a good many while he would be carrying a load to some wood-working factory to have it done by appropriate machinery.

After he has got out a lot of these huge wooden wedges they are deposited in his wife's wash-boiler, and boiled on the cook-stove. They require boiling about an hour to make the wood soft enough so he can shave it up into staves. After boiling, the wedge-shaped block is screwed into a vise, and then he takes a home-made drawknife or splitting-gauge set so as to take off a shaving a little more than  $\frac{1}{8}$  inch thick. With his stout muscular arms our friend will slice off staves or big shavings, you might call them, about as fast as one can pick them up. It made me think of the cooper shavings we schoolboys used to carry home from the cooper-shop across the road from the school-house, in olden time. Now, although these looked like the old fashioned cooper shavings, they are all of an exact size, length, and thickness. From their shape they made me think of great big cucumber seeds.

You will remember we left the wheel standing on the form in the middle of the room. Now our friend picks up the big cucumber seeds and sticks them point first in between the two wooden wheels forming the bottom. When he gets clear around we find it takes just 15 to reach; then he slides in 15 more on top of the first lot so as to break joints. The whole thing now looks like a mammoth ox-eye daisy with its white petals sticking out like the rays of a star from a white basswood wheel. The nut on that central steel rod is now pressed down so as to hold every thing solid. A big washer is placed under the nut so that said nut shall not sink into the soft basswood.

We are now ready to nail the bottom fast to the splints. The right sort of wire nails are driven down through the staves, and clinched against the heavy iron form underneath the

bottom. If the oak were dry and seasoned it might be hard to get the nails through; but you remember they have just been steamed, and the action of the dampness in the wood on the nails soon rusts them so tight and solid they can never budge. This wooden bottom holds the splints up from the floor so that they do not get worn through by sliding the basket around.

After the bottom is nailed fast, a big stout hoop like that used by coopers is laid on top of the projecting staves and crowded down. This makes our big star into the form of a basket, in a twinkling. A hoop made something like an ordinary barrel hoop is now placed on the staves about half way between the top and bottom of the basket, and nailed to every stave. A similar but lighter hoop is placed inside, and the nails go through both hoops and the staves between them. In the same way a pair of heavier hoops are put around the top edge of the staves, one hoop inside and one outside. When these are done the basket is all finished except the handles. These are made of steamed oak or other suitable wood, being notched in with a sharp knife where they strike the upper hoop, and are then stapled fast to the upper edge of the basket, with appropriate iron staples. These staples are driven through and clinched.

The basket is now ready to be handed over to the farmer, for corn, potatoes, or any other crops. It is pretty close business making such a basket, and furnishing material, so that it can be retailed for 12 $\frac{1}{2}$  cents, is it not, friends? Friend Roberts told me he used to get \$2.50 a dozen for these baskets. They were then retailed for 25 cts. apiece. For several years the price has been gradually coming down. You see he is obliged to compete with inferior work—the gift baskets that are not expected to much more than hang together until you get home with your produce. He not only works all day, but he saws out the wheels for the bottoms evenings, by lamplight, makes the handles, and does other nightwork.

The hoops are made by taking a log to the sawmill, and having it sawed into 3-inch planks. Then with a buzz-saw they rip off strips from this plank, about  $\frac{3}{8}$  inch thick, or less. The logs are cut of such length as to make an even number of hoops, without waste; then friend Roberts splits up the long thin lath with a splitting gange, so as to make different width pieces. The lower hoop is  $\frac{1}{8}$  inch wide, the upper one a plump inch.;

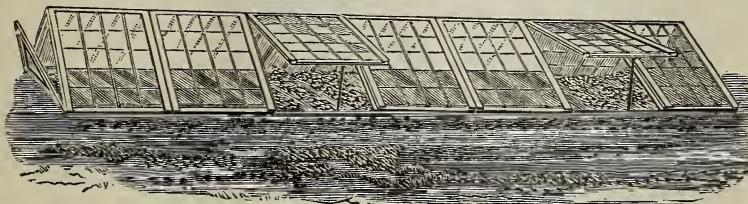
Now, friends, here is a valuable object-lesson in the little story I have been telling you. Rather than be out of work and do nothing at all, our good friend has decided to work thus cheaply; in fact, he told me the only outlet for him to pay his rent and educate his children, keeping them decently clothed, was to make baskets at this low price. Are you doing as much in your own home and neighborhood to help things along? You see he is not only helping himself, but he is giving the farmers, who are obliged to sell their crops so cheaply, a good serviceable oak basket at a price correspondingly low compared with what they get for the stuff they sell. Sometimes it seems hard, I know, to be obliged to work hard and get only small pay at that; but when we come right down to business, and decide to make the best of every thing just as we find it in this world of ours, we are pretty sure to find a good deal to be thankful for after all.

After visiting the basket-maker I made a call on Mr. Job Green, the Medina Co. nurseryman. When I came near the place I judged the family were busy cleaning house, for the lounges, easy-chairs, and other furniture stood

out on the lawn in front of the dooryard. Under the circumstances I excused myself from going in; and after looking over the thrifty young fruit-trees and discussing fruit and kindred industries, I prepared to go on—stopping long enough, of course, to sit down on one of the lounges and sample some of the apples we had been talking about. Mrs. Green soon came out with a very pretty grandchild in her arms; and just as I started to go away she informed me that they had decided to clean house, even if it was election day, because they would be

young giants in stature, they are nice-looking boys, and good ones.

As I sprang from my wheel my eyes were delighted with a group of the prettiest cold-frames filled with plants that it was ever my fortune to behold. It is only once in a great while that I see any thing in the way of plant-growing that just meets my ideal. We had it here to a dot. There was no new invention about it particularly; but it was a well-made cold-frame on principles which most of us know all about.



A COLD-FRAME FOR WINTERING OVER CABBAGE, CAULIFLOWER, LETTUCE, ETC.

pretty sure of having no visitors. This was said just as I started off. By the way, let me remark that other people have found out what a beautiful fruit that sloe plum is that I have been telling you about. Friend Green said that, a few years ago, they budded quite a lot of them, but there was not very much call for them, and their stock ran down. This year, however, there has been quite a demand for it. They are not only almost the handsomest fruit that one can have in his dooryard, but they are luscious to eat raw—that is, where one loves the taste of the wild plums as I do; and there is no nicer plum in the world for sauce and canning. I can not find that any nurseryman advertises them; but friend Green promises to procure some for me, if they can be had. One reason why I always enjoy a visit to this nursery is that our veteran friend not only loves the fruit and fruit trees, but he loves more than all, *the kingdom of God and his righteousness*.

I had planned to visit the Atwood celery-farm; but as the wind was blowing strongly in the direction of my home, and it was near night, I decided to go home on the cars. When I reached Fairlawn station it was just an hour till train time. The celery farm was two miles and a half away. Counting a mile for every five minutes on the wheel, and five minutes more for little hindrances, my visit to the celery-ground could not occupy more than 25 minutes. I sprang on to my wheel, and was just making things fly, having covered about half the distance, when my eye caught sight of a cluster of glass-covered frames, and then another long frame newly made covered with beautiful white and glistening glass sashes. The rays of the declining sun made them glisten. It was a surprise to me, because I was somewhat acquainted in that vicinity. Said I to myself, "Why, how does it come that somebody is enterprising enough to invest in sashes and gardening implements at just this time when every thing is so low, and so many people are lamenting about the 'hard times' (see page 833)? Instead of going ahead I turned my wheel abruptly and rode up the lane, where an exceedingly tall slim young man was watering plants with a hose and sprinkler. I then remembered that this was the residence of Mr. Miller, whom I have before mentioned as a progressive market-gardener. Friend M... is getting pretty well along in years, and he has turned over the gardening business to his stalwart boys. Now, even if his three boys are

The picture above shows just about how the frame or pit was made, except that the sashes were more nearly level. In fact, the ridge-pole was not more than 10 or 12 inches above the outside; and there was, of course, no gable end to speak of. The special feature of these cold-frames—there were four of them—was that the whole outside was made of good hard brick laid in cement. The surface of the bed where the plants stood was about a foot below the level of the ground; and the earth thrown out was banked up around perhaps another foot above the surface. This made the walls 2 feet deep—that is, it was about 2 feet from the eaves to the surface of the soil where the plants stood.

Now, I have a great many times been disgusted with wooden stakes and wooden plank for cold-frames and plant-beds. With the heavy watering that is necessary to get the best results from plants, in connection with the high temperature needed to have them grow well, any kind of wood will soon rot and become unsightly, and be giving way. This brick and cement would last, I suppose, a lifetime. Then there is another advantage that I have been thinking of for some years past—a *sunken* bed is much better for plants than one level with the ground, or raised up above the ground-level. It is better in the summer when the plants are likely to dry up and be scorched by the intense heat of the sun; and it is ever so much better in winter time, because it is a far easier matter to give ample protection from frost—especially around the outside edges of the bed, providing *always* that you have *perfect drainage*. The Miller brothers have their sashes to slide on the rafters; and when they are pulled back, the lower end of the sash rests on a bar of wood fastened to stakes just a little above the surface of the ground. They make it a rule to uncover their cold-frame cabbage-plants whenever the weather is above the freezing-point. When every thing is frozen up solid, the sashes are kept closed and not disturbed at all. With the neat well-fitting and perfectly tight sashes and rafters, I should not be surprised if it were rare to find the surface of the ground frozen where these cabbage-plants stand. When I saw them, each plant had leaves about as large as a fifty-cent piece. The leaves were dark green, clean and thrifty. The plants were put in by a spacing-board such as we use, at exact distances, and there was hardly a miss or break in the whole four

frames. The cold-frame in the picture is covered by 28 sashes. This would make a bed inside about 11 feet wide by 25 feet long. Those used by the Miller brothers are perhaps a little wider because the sash is laid down so much flatter; and the length of each frame was perhaps 20 feet. The four frames together hold about 28,000 cabbage-plants. Said I:

"Why, friend Miller, is it possible that you people make use in your own market-garden of all these plants?"

"Pretty nearly all of them, Mr. Root."

"And you are fully satisfied, then, that cold-frame cabbage-plants are enough better than those grown under glass in the spring, to pay for all this expense of beds and sashes over winter, are you?"

"Yes, we are fully satisfied. Our very early cabbage grown from cold-frame plants always bring us good prices. A little later, when prices go down, there is not much money in it."

I did not wonder so much when I realized that, with these extra nice beds, they would have a lot of cabbage-plants that are far ahead of those ordinarily found. He said further:

"Oh! if folks insist on having them, we let them go at 10 cents per dozen; but we do not care to let them go any cheaper, for they are worth that to us."

Please note here one feature of the cold-frame I have described. The glass in the sashes is 2 or  $\frac{3}{4}$  feet above the plants. This gives a better protection from frost, and it is all right for cold-frame cabbage-plants, because we do not want them to grow, but just to stand still through the winter.

Great quantities of Grand Rapids lettuce-plants are wintered over in the same way; but for the lettuce-plants a much cheaper bed with board sides answers. In fact, the great long bed that I saw from my wheel had nothing but 12-inch barn-boards for the sides. The bed was 125 feet long, if I am correct, and it was built very much like the one shown in the cut. I was surprised again that they should invest so heavily in lettuce-plants, but was informed that they were entirely for their own use, and that the demand for Grand Rapids lettuce is increasing so rapidly that they had never yet had enough good plants. In connection with all these cold-frames they have a small greenhouse warmed by flues. A windmill pumps the water, and stores it in a little tank adjoining the greenhouse.

I wanted to stay longer, but it was only 15 minutes to train-time, and I was a mile and a half from the depot; but where one is really hungering and thirsting for information, how much he can learn in just 25 minutes—that is, when he gets among progressive people! Now, friends, how many of you would think you could afford a cold-frame walled round with hard bricks and cement? And the question comes in here: How long do you expect to continue in the gardening business? Are you going to switch off and try something else as soon as there are great crops and every thing is down low? If so, you can not afford to build a cold frame like the one I have described to you. Gardeners have had a hard time getting any thing like cost for a great part of their stuff in our locality this past season; but these boys are pushing ahead, making nice and perfect arrangements for their work, just as if they knew nothing about hard times at all, and they will surely get their reward. This lack of enthusiasm, and getting tired of your own legitimate business, is, in my opinion, the greatest hindrance to successful bee-keeping, successful gardening, or successful farming, that meets us as a people. It is worse than drouth and flood, grasshoppers, blight, or even a scarcity of

money. The man who keeps right on in his own line of business year after year, keeping posted in regard to all improvements and short cuts, is he who is going to win.

Just now, this 6th day of November, people are wanting Grand Rapids lettuce. In fact, one lady begged us to let her have some leaves from some stalks that had gone to seed, for we had not a plant large enough to cut. Celery is also bringing good prices, as it has been doing for years past. Hubbard squashes are becoming scarce, and the market price is running up. Now, shake off this lethargy. Go to work during these bright cool days; fix up your greenhouses and cold-frames, and make things permanent and substantial. It does not pay to invest time and money in a crop, and then lose it by some unusually severe storm and freeze, just because your greenhouse and frames were so rickety your stuff did not have adequate protection. I told you last season about putting building-paper over the board sides of our cold-frames, and covering the paper with common shingles, letting the shingles run up and down. Beds thus fixed have suffered but very little from severe freezes, especially from having the plants killed around next to the outside of the bed.

### Special Notices in the Line of Gardening, etc.

By A. I. Root.

The government bulletin alluded to on page 833, "Household Insects," can be had by sending 10 cts. for Bulletin No. 4, New Series, U. S. Department of Agriculture, Division of Entomology, Washington.

#### A BARGAIN.

We have made arrangements to furnish the *Ohio Farmer* and *GLEANINGS* for only \$1.50. The *Ohio Farmer* is well known as one of the very best, largest, and among the leading agricultural papers of America. A 20-page, 80-column paper every week in the year; employs the very best writers that money can procure; a strong, fearless defender of the agricultural interests of this country, and clean in both reading and advertising columns. It helps make the farm pay.

#### SEED POTATOES, NOVEMBER 15.

On page 802 of our last issue I spoke of having sold practically all of our No. 1 Thoroughbred potatoes. In arranging some of the details of the sale, however, we could not exactly agree, and so the sale was not made: therefore our Thoroughbreds, first quality, will remain as in the table below:

NAME.	1 lb. by mail.	3 lbs. by mail.	$\frac{1}{2}$ peck.	Peck.	$\frac{1}{2}$ bushel.	Bushel.	Barrel—11 pk.
Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.							
White Bliss Triumph ...	\$ 15	\$ 35	\$ 20	\$ 35	\$ 60	\$ 1 00	\$ 2 50
E. Thoro'bred, Maule's	50	75	60	100	40	3 00	7 00
Early Ohio ...	15	35		25	40	7 50	2 00
Early Norther ...	12			20	35	6 00	1 50
Burpee's Extra Early ...	15	35		25	40	7 50	2 00
Freeman ...	15	35		25	40	7 50	2 00
New Queen ...				20	30	5 00	1 25
Monroe Seedling ...	12			20	30	5 00	1 25
Rural New-Yorker No. 2 ...	12			20	30	5 00	1 25
Sir William ...	15	35		25	40	7 50	2 00
Carmar No. 1 ...	12			20	35	6 00	1 50
Carmar No. 3 ...	15	35	20	35	60	1 00	2 50
Koshkonong ...	15	35		25	40	7 50	2 00
Manum's Enormous ...	13	35	20	35	60	1 00	2 50
New Craig ...	15	35	20	35	60	1 00	2 50

We guarantee against damage by frost all potatoes ordered and shipped during this month of November.

#### THOROUGHBREDS FOR PREMIUMS.

Remember, 1 lb. of Thoroughbreds will be given for every subscription to *GLEANINGS* provided you do not ask for any other premium; and this will apply to paying up old dues or subscribing for the future—that is, a pound of Thoroughbreds for every dollar sent. But you must pay 9 cts. for postage